Exhibit 5

UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MASSACHUSETTS

AIR TRANSPORT ASSOCIATION OF AMERICA, INC. d/b/a AIRLINES FOR AMERICA, Plaintiff, v. MAURA HEALEY, in her official capacity as Attorney General, Commonwealth of Massachusetts, Defendant.	No. 1:18-CV-10651-ADB

DECLARATION OF DANIEL AKINS

I, Daniel Akins, declare and state the following:

1. I am an air transportation economist with over 30 years of experience as an airline industry consultant and expert. I am the principal owner and founder of Akins & Associates, Inc., which provides consultant services relating to the airline industry. I am also a partner in aviation consultancy Flightpath Economics, LLP, as well as Aviation Workforce Alliance.
2. I earned a Bachelor of Arts degree in economics, with honors, from Gustavus Adolphus College in 1981, and a post graduate diploma from the London School of Economics in 1983, with a specialization in transportation economics, econometric modeling and forecasting.
3. As an air transport economic consultant, I apply economic principles and statistical analysis using operational and financial data to provide my expert opinion on industry-related matters to airlines, airports, airframe manufacturers, labor unions and other

aviation-related concerns. My clients have included major airlines, aircraft manufacturers and airports, labor unions, financial institutions and state governments.

4. In the course of my 30 years of experience I have provided economic and operational evaluations in support of dozens of collective bargaining agreement negotiations in the airline industry, including those at Alaska Airlines, Atlas Air, United Airlines, Southwest Airlines, UPS, America West and Hawaiian Airlines.

5. I have been qualified more than a dozen times to testify as an expert in Federal Courts in matters relating to air carrier bankruptcies, airport user litigation, labor disputes and individual employee lost income litigation.

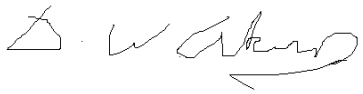
6. I was retained by the Office of the Massachusetts Attorney General to review the November 12, 2018 Expert Report by Darrin Lee, Ph.D., ("Lee Report") and assist in the evaluation of certain operational and financial issues pertaining to the captioned litigation and to rebut conclusions drawn in the Lee Report, to the extent I concluded they were incorrect. A true and accurate copy of my December 27, 2019 Rebuttal Report bearing my signature is attached hereto as exhibit 1. Details of my experience and qualifications to provide an expert opinion in this matter are contained in my curriculum vitae, attached as Appendix A to exhibit 1.

7. Attached as exhibit 2 is a true and accurate copy of the November 9, 2020 Supplemental Report prepared by me and bearing my signature.

8. My Expert Rebuttal Report and Supplemental Report attached hereto as Exhibits 1 and 2, respectively, accurately reflect my qualifications, the work I undertook at the request of the Massachusetts Attorney General, and my opinions in rebuttal to the November 12,

2018 Expert Report of Darrin Lee. If called to testify, I can do so competently as to all matters recited in the reports attached as Exhibits 1 and 2.

Signed under the pains and penalties of perjury this 18th day of December, 2020.



Daniel W Akins

EXHIBIT 1

UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MASSACHUSETTS

AIR TRANSPORT ASSOCIATION OF, INC., AMERICA, INC., d/b/a AIRLINES FOR AMERICA, Plaintiff, v. MAURA HEALEY, in her official capacity as Attorney General, Commonwealth of Massachusetts, Defendants.	Case No. 1:18-cv-10651-ADB

REBUTTAL REPORT OF DANIEL W. AKINS

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Daniel Akins, for his Declaration under oath, says:

I. Qualifications and Assignment

1. I am an air transport economist with over thirty years of airline industry consulting experience. I own my own consultancy firm, Akins & Associates, Inc., based in Stowe, Vermont. I am also a partner in aviation consultancy Flightpath Economics, LLC, as well as President of the Aviation Workforce Alliance, a non-profit corporation focused on the search for and creation of solutions to address the shortage of technically skilled aviation employees. During my career, I have applied economic principles and statistical analysis to various modes of transportation using financial and operational data on behalf of airports, airlines, airframe manufacturers, labor unions, and other aviation related concerns. My clients have included: Lufthansa, Air Canada, Boeing, McDonnell Douglas, American Express, J.P. Morgan Chase, Cisco Systems, the State of Virginia, the U.S. Postal Service, a large number of airports, and a wide variety of labor groups. I have provided economic and operational evaluations in support of dozens of labor collective bargaining contract negotiations, including those at American, Alaska, Atlas Air, United, Southwest, US Airways, UPS, America West, and Hawaiian, among others.

2. I have been integral to a wide variety of endeavors in commercial aviation regarding the operational and financial implications of passenger and cargo operations and interests. For example, I analyzed the implications of the transfer of express overnight mail and cargo to FedEx on behalf of the US Postal Service. I contributed demand forecasts and market studies in the successful pursuit of international passenger and all-cargo operations before the U.S. DOT for bilateral route rights, including American Airlines bid to serve London, England from

Nashville, TN, Southern Air Transport bid to serve to South America, and American International Airways service to Brazil, among others. I conducted market analysis and demand forecasts for McDonnel-Douglas Corporation regarding the viability of converting the C-17 military cargo aircraft to commercial use. I was the lead advisor in the State of Virginia's commercial airport development plan to improve the competitive position of the Commonwealth's airports. I have been an advisor to members of numerous Unsecured Creditor Committees during air carrier restructurings in Chapter 11 bankruptcy, including the AMR Corp. bankruptcy, where I introduced the concept of merging American Airlines with US Airways while in bankruptcy, which resulted in the creation the world's largest airline. I served as the lead financial advisor for 240,000 members of the International Brotherhood of Teamsters in their most recent contract negotiations with UPS. I hold a post-graduate degree in transport economics from the London School of Economics. My Curriculum Vitae is attached as Appendix A.

3. I was retained by the Office of The Attorney General of The Commonwealth of Massachusetts to assist in the evaluation of certain operational and financial issues pertaining to the litigation of Air Transport of America, Inc. v. Maura Healey, in her official capacity as Attorney General, Commonwealth of Massachusetts, et al. This litigation involves the alleged potential impact on airlines due to compliance with the Massachusetts' Earned Sick Time Law stemming from purported changes in the behavior of airline flight crews and airline ground workers.[1] My fee on this matter is $300 per hour. My compensation is not dependent on the content of my opinions or litigation outcome.

1. Air Transport Association of America, Inc. v. Maury Healy, in her official capacity as Attorney General, Commonwealth of Massachusetts, United States District Court for the District of Massachusetts, Case 1:18-cv-10651-ADB.

II. Summary of Opinions

4. The Plaintiff, The Air Transport Association of America ("A4A"), alleges that the implementation of Massachusetts' Earned Sick Time Law ("ESTL") will create operational and financial hardships on airlines and their passengers. A4A has retained an economist, Dr. Darrin Lee of Compass Lexecon, in an effort to demonstrate the potential impacts faced by A4A carriers as a result of compliance with the ESTL. I have read the Expert Report submitted by Dr. Lee dated November 12, 2018 and am submitting this report, data and analysis as a rebuttal to opinions and findings in Dr. Lee's Report. In his Report, Dr. Lee predicts that flight delays and cancellations, and other associated consequences, will occur if A4A carriers were to comply with ESTL, and that a "patchwork" of local regulations will develop and undermine the benefits of the Airline Deregulation Act ("ADA").[2] As is supported by the evidence, I content Dr. Lee's analysis is biased, the results erroneous, and his repeated assertions of the likely impact of A4A carrier compliance with Massachusetts' ESTL are generally unsupported. Furthermore, his conclusions on the impact of ESTL on airline operations and passenger fares are grossly exaggerated, and largely at odds with the marginal impacts provided by his own flawed analysis, as well as results of A4A airline performance in Boston since ESTL became effective.

5. Dr. Lee's Report is divided into two principal sections. Section III of his Report generally concerns the ADA and Plaintiff's claim that the Commonwealth of Massachusetts is preempted from implementing local laws, such as ESTL, because air carriers serving Massachusetts operate overwhelmingly in federally regulated airspace flying passengers on interstate routes, and that A4A carrier compliance with ESTL will undermine the benefits

[2] Lee at paragraph 43.

provided by the ADA, and thus are preempted by the Act. In Section IV of his Report, Dr. Lee asserts that compelling A4A carriers to comply with ESTL will result in changes in employee behavior that will cause detrimental impacts on A4A carriers and their passengers, causing a series of calamitous events that will affect airline prices, services and routes to and from Massachusetts.[3] As demonstrated below, A4A carriers have operational tools to support staffing challenges which occur every day, and have the flexibility to prevent delays and cancellations from cascading across their systems. Despite his claims, Dr. Lee provides no evidence to support his theory that A4A carrier prices, services or routes would be affected by compliance with Massachusetts ESTL. In fact, the evidence strongly suggests that his principal assessment of impact of ESTL on airline operations is substantially off base given the recent successes at Boston Logan airport, propelled by dramatically expanding airline service at lower fares.[4]

6. Dr. Lee attempts to demonstrate the relationship of employee sick leave use and airline operations through a series of regression analyses. I understand that a detailed analysis of Dr. Lee's various statistical analyses is being offered by another Expert, so I do not offer a detailed critique of his analytical methodology. However, it is clear, that despite flaws, the results of Dr. Lee's statistical analysis relating to the impact of employee sick leave use on airline operations are underwhelming, yielding extremely low marginal impacts on air carrier delays.[5] This makes his unsubstantiated claims of dramatic change in airline delays, cancelations,

[3] Ibid. Paragraph 61.

[4] For example, Boston Logan was the 4th fastest growing major airport in the U.S. from 2017-2018. Source: OAG, *North Americas Fastest Growing Airports in 2018*.

[5] Lee at paragraphs 72 and Exhibits 18, 22 and 23 for example.

routes, services, costs and fares, purportedly resulting from A4A airline compliance with ESTL difficult to comprehend.[6]

7. In Section IV of his Report Dr. Lee also presents the operations of Virgin America in New York City as a "*chilling example of the consequences such laws can have on airlines and the travelling public",* after Virgin complied with NYC's Employee Sick Time Act ("ESTA"), a paid employee sick leave law similar to Massachusetts' ESTL.[7] As demonstrated in this report, and for a wide variety of reasons, Virgin America's experience in NYC is not a useful example from which to predict the impact of compliance with ESTL on A4A carrier operations in Massachusetts. If his assessment of Virgin operations in NYC were indeed a meaningful example of the potential impact of ESTL on airline operations, his analysis would indicate more than the extremely modest average increase in monthly flight delay rates. In the two years immediately following compliance with NYC's ESTA Virgin's cabin crew related flight delay rate increased by an average of only 0.16 percentage points, and by only 1.2 percentage points at the height of Virgin Flight Attendant sick leave use fully two years after ESTA, concurrent with the carrier's purchase by Alaska Air Group Dr. Lee erroneously relates these extremely modest impacts to Virgin's compliance with NYC's sick leave law rather than events related to Alaska's acquisition.[8]

8. Throughout his Report, Dr. Lee repeatedly claims numerous alleged catastrophic operational impacts related to airline employee's utilization of sick leave under ESTL, despite Virgin's experience and other results of his own analyses which further highlight the

[6] Ibid. paragraphs 30, 42, 43, 48, 53, 61, and 64, for example.
[7] Ibid. paragraph 70.
[8] Ibid. paragraph 72.

extremely limited potential impact. Listed below a few of Dr. Lee's erroneous claims, and my brief critique of them.

A. Dr. Lee is wrong to claim sick leave utilization by airline employees results in impactful flight delays and cancellations, which can extend for days, causing substantial inconvenience to the flying public and interstate commerce, affected fares and routes, and decreasing service and undermining growth.[9] *As I demonstrate, the actual airline experience at Boston Logan since ESTL became effective strongly contests Dr. Lee's thesis*.

B. Dr. Lee erroneously concludes ESTL will strip A4A carriers of critical notification – response time and disciplinary policy tools that will result in an increase in Pilot and Flight Attendant sick leave utilization that is harmful to A4A carrier operations resulting in negative impacts.[10] *As I show, carriers have a wide variety of staffing tools to successfully offset unexpected absences which occur every day throughout their operations*. *Dr. Lee's own analyses support this contention.*

C. Dr. Lee overstates the impact of ESTL when he claims sick leave use by airline employees is a "statistically significant" cause of flight delays affecting flights operated

[9] Dr. Lee repeats his unsubstantiated thesis that A4A carriers compliance with Massachusetts' ESTL will cause an increase in costs, raise fares, reduce service, prevent growth, reduce demand, reduce consumer choice, cause a book-away to other airlines, undermine operations and impact A4A air carriers and their passengers who will suffer a "wave" of delays and cancellations causing misconnections, bag delays and billions in lost output, revenue and taxes. Dr. Lee repeats this unsupported general theme in his Report at pages 9, 10, 11, 12, 15, 21, 39, 40, 47, 48, 49, 52, 52, 59, 65, 66, 67, 72, 85, and 87.
[10] Lee at page 15.

A4A carriers, and not just those arriving or departing Boston.[11] *Dr. Lee's statistical analysis provides measures of statistical significance, which is not the same as practical significance. The impacts are too small to be practically significant.*

D. Dr. Lee is mistaken when he claims Virgin America's experience complying with New York City's ESTA sick leave laws is a "*chilling*" example for airlines to consider when complying with Massachusetts ESTL.[12] *As I provide great detail in this report, Virgin's experience in New York, for wide variety of reasons, does not provide a reasonable example to consider when assessing the impacts of complying with Massachusetts ESTL.*

E. Dr. Lee is incorrect to assert NYC's ESTA sick leave law caused Virgin America to suffer financially and resulted in an operationally meaningful increase in cabin crew related delays and associated impacts which allegedly *"contributed significantly*" to the decision to close the carrier's New York Flight Attendant base. [13] *Dr. Lee ignored all of the strategic change taking place at Virgin America after being purchased by Alaska Air Group in 2016, and a number of other factors which affected Virgin's New York employees and the carrier's operations post acquisition.*

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[11] Ibid. at paragraph 66, footnote 166; *"Given that the A4A passenger carriers collectively operate 10,731 mainline flights per day with an average of 130 passengers per flight, even a relatively small (i.e., one percentage point) increase in delays will delay thousands of passengers each day".*

[12] Ibid paragraph 70.

[13] Ibid.

F. Dr. Lee's claim that if a replacement Pilot or Flight Attendant cannot be "found" in time for a flight, the fight is either delayed or cancelled is off base is misguided, as it ignores the functioning of airline staffing systems..[14] *As I show, A4A carriers have developed sophisticated means by which to minimize the potential impact of staffing issues on their operations. Reserve employees who are on standby to fill vacancies do not need to be "found" to avoid calamity, as Dr. Lee suggests.*

G. Dr. Lee is wrong to assert increases in sick leave use among American Airlines ground crew employees at LAX after the carrier complied with sick leave laws were impactful to the AA's operations at the airport.[15] *Dr. Lee exaggerates marginal increases in sick leave use among LAX employees and provides no basis for his claim regarding impact on AA's operations. As I show, AA's delay time actually decreased substantially at LAX after the carrier complied with Los Angeles' sick leave laws.*

H. Dr. Lee's claim is unfounded that sick leave use among ground workers causes morale problems that make working conditions unsafe, resulting in an increase in on-the-job injuries. [16] *In my experience working on behalf of numerous ground grew employee groups, Dr. Lee's claim that morale suffers from others use of sick leave is not credible, neither is Dr. Lee's analysis of OJI suffered by ground workers in California and Boston. Dr. Lee links increases in OJI incidence to post sick leave law enactment, and by default*

[14] Ibid. at paragraph 46.
[15] Ibid. paragraph 53.
[16] Ibid. paragraph 78.

caused indirectly by increased sick leave use, but he does not demonstrate that such injuries occurred during shifts that were affected by absences or were short staffed.

I. Dr. Lee erroneously contends that hiring additional workers to cover vacancies related to a purported increase in employee sick use due to ESTL will be costly and cause carriers to increase fares and reduce service.[17] *A4A carriers collectively spent over $37 Billion annually on employee compensation and benefits in 2018.[18] As I illustrate, a potential marginal increase in employee expense to ensure adequate staffing would amount to wholly insubstantial relative cost increase, which if passed through to passengers fares would amount to pennies per passenger at Boston, and not affect consumer choice or fares.[19]*

J. Dr. Lee claims of large and dramatic negative impacts to airline performance and services, consumer choice, operating costs and passenger fares will occur as a result from airline compliance sick leave laws such as ESTL are unsupported and overstated. [20] *As his own report demonstrates, the largest impacts purportedly related to increased employee sick leave use are extremely modest, in the 1% to 2% point range.[21] Therefore, the massive downstream impacts he contends will occur as a result of a marginal increase in flight delays is not credible. As I demonstrate, the results of Dr. Lee' own research would*

[17] Lee at paragraph 42.
[18] US DOT Form 41 Data.
[19] Based on analysis of coverage needed to offset 3 to 6 daily flights impacted by Dr. Lee's purported increase in flight delays.
[20] Lee at paragraph 42.
[21] Ibid. Exhibit 18 and paragraphs 66 and 72.

represents in a potential increase of 3 to 6 flight delays a day at Boston for all A4A carriers combined.[22] *These marginal increases in crew related delays are hardly the kinds of changes that would cause the calamities Dr. Lee predicts, especially given the background levels and daily variability of existing flight delays.*

9. In this Report I more fully assess these claims, and others, with data and evidence to rebut Dr. Lee's opinions, analysis and conclusions. For the reasons discussed, A4A carrier compliance with Massachusetts' ESTL has not and will not cause the disruption and calamity that Dr. Lee predicts. In fact, as opposed to Dr. Lee's contentions, Boston has emerged as one of the healthiest and fastest growing markets for air carriers and their passengers in the U.S. in the years since ESTL became effective.[23] The fundamental underlying choice suggested in Dr. Lee's report is, on the one hand, airlines' interest in reliable, safe operations and profit making coupled with passenger interests in expanded services at low costs, versus, on the other hand, guaranteed access for airline employees to a minimum paid sick leave.[24] I contend this is a false choice, as dramatically increased consumer benefits have been achieved through increased airline services at lower costs in Massachusetts while at the same time airline employees have had increased ability to access and protections to earned sick leave under ESTL. As a critical rebuttal to the central theme of Dr. Lee's report, the CEO of Cape Air stated in his Declaration; *"I find the notion that employees rampantly abuse earned sick time offensive"*.[25]

[22] Based on US DOT data on departures at BOS for the five A4A carriers combined.
[23] According to US DOT data Boston Logan has grown faster after ESTL than before and has ranked in the top ten fastest growing large airports in the U.S. since 2015.
[24] Lee at paragraph 42.
[25] See Declaration of Daniel A. Wolf, November 14, 2019, paragraph 13.

III. Dr. Lee Misconstrues the Reach and Applicability of the ESTL

10. Section III of Dr. Lee's report begins at page 17, where he presents a lengthy demonstration of the obvious, that most U.S. passengers airlines operate on routes which involve interstate transportation and commerce, with flight paths of their aircraft often crossing over multiple state jurisdictions. Consequently, airline flight crews working aboard these aircrafts perform job functions above or in variety of different states, depending on flight routing and employee work schedules. He spends a good portion of Section III providing examples to demonstrate that air crews spend most of their work time in federally regulated airspace. Dr. Lee contends, *"Because pilots and flight attendants are typically performing their job in federally- (or internationally-) regulated airspace, they generally spend very little time working on the ground in the state where they reside*". [26] Upon this basis Dr. Lee then introduces the hypothetical complication of states somehow attempting to apply their individual sick leave laws based on the amount of time each airline employee spends, in the airspace above each jurisdiction.[27] Clearly this a completely unworkable exaggeration of state sick leave laws, and is an attempt by Dr. Lee to complicate, expand and misconstrue the applicability of Massachusetts ESTL and other state laws to airline employees.

11. Dr. Lee also fills a considerable number of pages in his Section III describing how airline flight crew employees (pilots and flight attendants) perform most of their work away from their home base. Starting on page 30, Dr. Lee presents an example, in the minute detail, the exact amount an of time an employee would spend in route on a sample flight across the U.S. On page 32 Dr. Lee doubles-down on his hypothetical air space jurisdiction issue by adding

[26] Ibid. paragraph 20.
[27] Ibid. paragraphs 21 and 23

another twist to his scenario. Here he opines about "*the complications that would arise if airlines were compelled to comply with a particular state's sick leave laws by virtue of it pilots and flight attendants performing work in the airspace above a state are exacerbated by the fact that the same flight (i.e. route and flight number) operated on different days may fly over different states (and countries) as the flight path taken on a given route varies from day to day …….*" [28] Obviously, the purpose of this hypothetical observation is to inject an unworkable proposition that is outside the context of applicability of ESTL as I understand it.

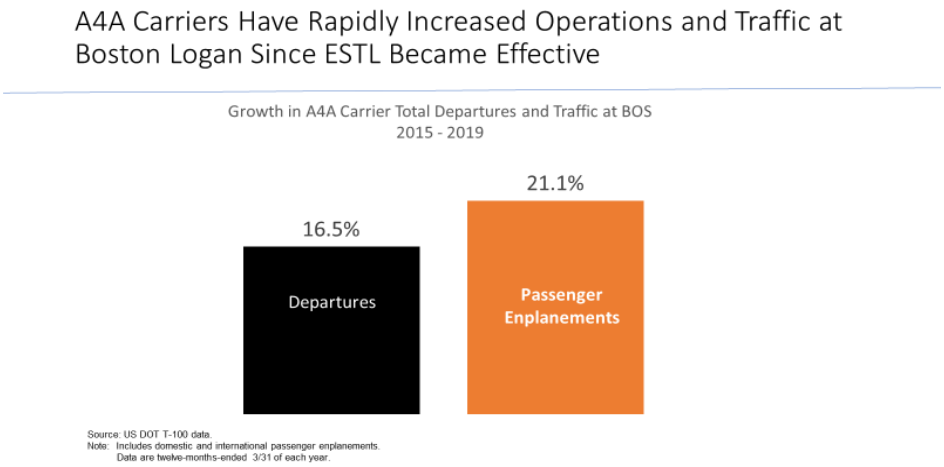
12. In my analysis, and from results at Boston Logan, providing airline employees with access to paid sick leave does not threaten the public benefits of competition provided by the ADA. On page 38 of his report, Dr. Lee writes "express aim" of the Airline Deregulation Act to develop "*an air transportation system which relies on market forces to determine the quality, variety and prices of air services*" and that the "*public interest is served by the availability of a variety of adequate economic, efficient, and low-prices services by air carriers without unjust discrimination, undue preferences or advantages, or unfair or deceptive practices, the need to improve relations among, and coordinate transportation by., air carriers, and the need to encourage fair wages and equitable working conditions*".[29] It would seem that public interest has been upheld in Boston, which is one of the fastest growing airports in the U.S., with expanding domestic and international routes and services.

13. The high rate of growth in Boston over the past few years was not just limited to hub carriers Delta or JetBlue. As shown in Graph 1, total operations and traffic at Boston for

[28] Lee at paragraph 23.
[29] Lee at para. 28.

A4A carriers have grown dramatically over the past few years. Since 2015 total A4A carrier departures combined have increased by 16.5%, while total A4A passenger traffic has grown even faster, at 21.1% during the same period.[30] Thus, despite the dire predictions and calamitous impact of ESTL asserted repeatedly by Dr. Lee, carrier operations and traffic at Boston grew rapidly after the law was enacted.

Graph 1



14. The remainder of Section III of his Report is devoted to a discussion of the consumer benefits provided by the deregulation of U.S. airlines since 1978. As proof of the increase in airline passenger benefits relating to the operational reliability of airline service, Dr. Lee points to the results of the J.D Power 2018 North American Airline Satisfaction Study.[31] With the primary focus of his Section IV is on ESTL's purported impact on airline on-time performance and cancelations, it is insightful that Dr. Lee cites this survey as a means for supporting his argument of passenger satisfaction with airline performance.[32] As Dr. Lee

[30] US DOT T-100 data.
[31] Lee at paragraph 39.
[32] Lee at paragraph 39.

indicates, the J.D. Power survey is based on seven factors, listed by order of performance, none of which are a measure of on-time performance, delays or cancellations. These seven J.D. Power airline passenger satisfaction indicators are;

1. Cost & Fees
2. In-flight services
3. Aircraft
4. Boarding/deplaning/baggage
5. Flight Crew
6. Check-in
7. Reservations

15. Interestingly, five of the seven J.D. Power measures of consumer satisfaction include airline operations which are fundamentally tied to the performance of airline employees including, inflight services, boarding/deplaning /baggage, flight crew, check-in, and reservations. Consequently, if airlines were to focus on the performance factors in J.D. Power's passenger satisfaction survey they would likely want to ensure that their employees were healthy and able to perform their jobs without being impaired by illness.

16. Dr. Lee concludes Section III of his Report by *stating; "an analysis of available data confirms that four decades after the passage of ADA, the U.S. airline industry has become intensely competitive and that consumers have reaped the benefits of a robust U.S. airline industry in the form of lower fare, expanded service offerings, and more reliable and higher-quality service".* Given his review of the available data it would seem Dr. Lee might have noticed the multiple competitive benefits of the ADA continuing robustly at Boston Logan after ESTL became effective in July 2015.

IV. Dr. Lee Wrongly Asserts a Substantial Negative Impact of ESTL on Passenger Fares, Carrier Routes and Services at Boston

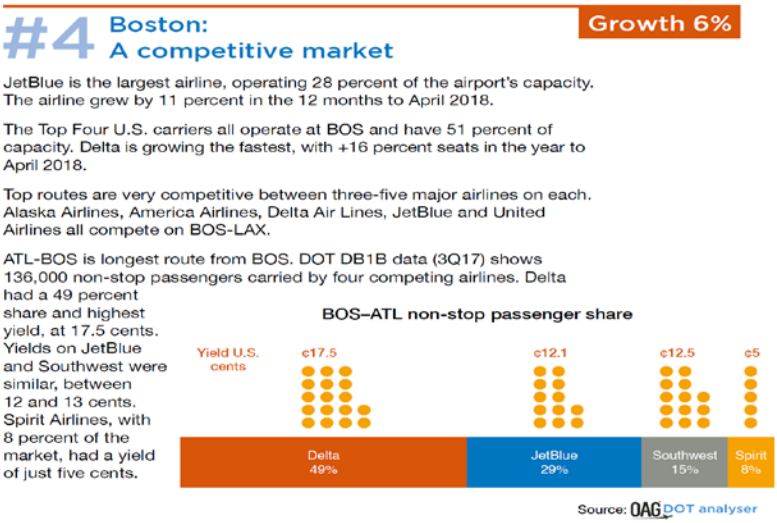
17. Despite the fact that not all A4A airlines have crew bases in Boston, for example Alaska, nor are all A4A carriers with crew bases complying with ESTL for flight crews, it is my understanding that all A4A carriers operating in Boston are complying with ESTL for their ground crew employees. Therefore, all A4A carriers operating at Boston, except Alaska, have had four years of experience complying with ESTL. The significance of compliance with the law can be measured by the results of these A4A carriers results at Boston. Importantly, those carriers not in compliance at Boston would face marginal impacts on flight operations and costs if they were to comply, based on the statistical impacts on flight delays resulting from ESTL in Dr. Lee's Report.

18. Dr. Lee begins the second primary section of his Report , Section IV, on page 47 with a review of his principal thesis, summarizing; *"[s]imply put, as enacted and implemented, the Massachusetts Earned Sick Time Law would not only undermine carriers' abilities to offer reliable air service, but it would result in fewer choices and higher fares for travelers".* Recent explosive growth, expanding route offerings and competitive fares at Boston Logan, coupled with the connecting hub development by JetBlue and Delta, plus the establishment of e new a crew base at Logan by Delta's regional partner Republic Airlines, all serve as a dramatic real-world rebuttal to Dr. Lee's dire theoretical predictions of the purported impact of ESTL on flight operations.

A. Boston Logan is One of the Nation's Fastest Growing Airports

19. Evidence of dramatically increased flight operations at Boston since ESTL was implemented in 2015 contradict Dr. Lee's contentions. In 2018 a record number of airline passengers flew to and from Boston Logan, marking the first time the airport handled over 40 million passengers in a single year.[33] Carrier routes and services at Boston have also expanded, over the past five years Logan has consistently ranked in the top five of large U.S. airports in traffic growth, ranking #4 in growth percentage in 2018.[34] [35] A snapshot of Boston Logan characteristics from OAG is shown below in Graph 2, which is titled Boston: A competitive market.[36]

Graph 2

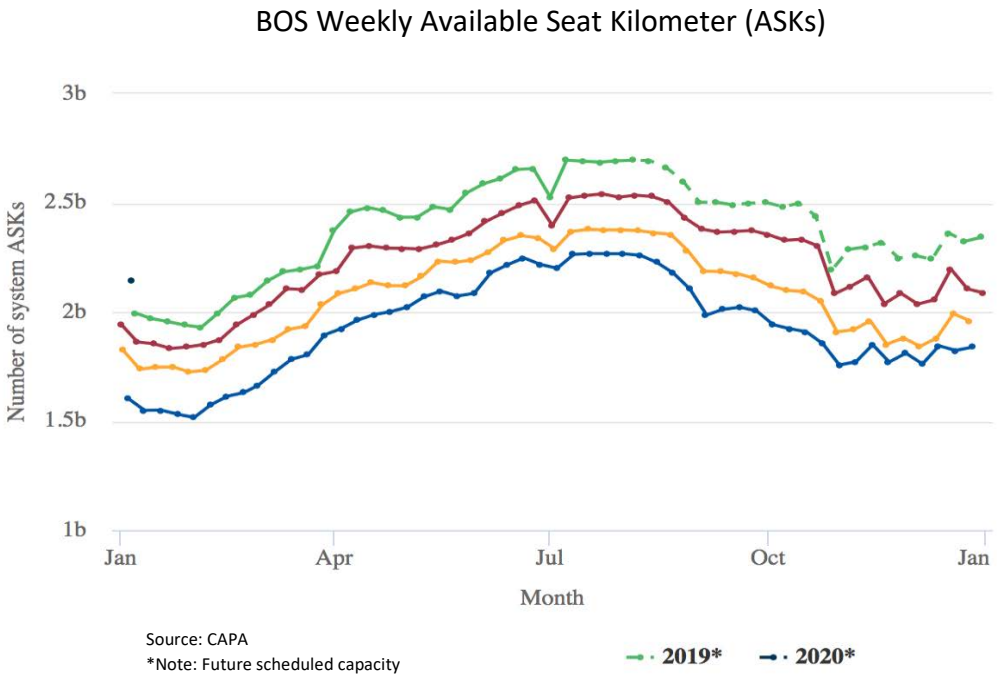


20. This recent performance of Boston Logan is not surprising considering two principal mainline carriers, Delta and JetBlue, have aggressively grown operations at Boston. Both carriers have flight and ground crew bases in Boston and have recently established

[33] Boston Globe, *Logan Poised to Become One of the Ten Busiest in the Country*, Sept 4, 2019.
[34] OAG, *North Americas Fastest Growing Airports in 2018*.
[35] https://www.faa.gov/airports/planning_capacity/passenger_allcargo_stats/passenger/
[36] OAG, *op.cit.*

operational hubs at Logan. Shown below in Graph 3 is the total scheduled weekly capacity operated at Boston Logan from 2016 through 2019. Graph 3 highlights the remarkable continuous growth year-over-year in every week of every month at the airport over the past several years since ESTL became effective.[37]

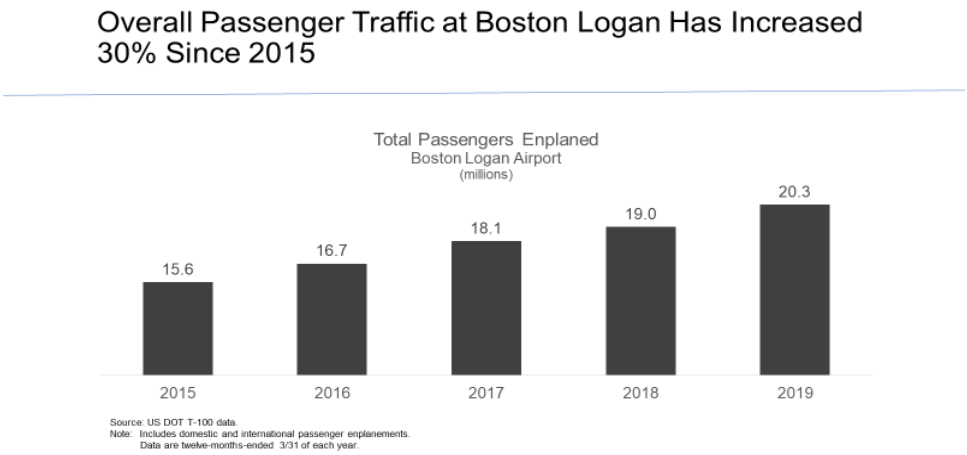
Graph 3



21. Graph 4 below displays annual passenger growth at Boston Logan since 2015, highlighting the 30% growth in passenger traffic over the past four years since ESTL became effective. [38]

[37] Centre for Aviation (CAPA), *Boston Logan Airport: JetBlue digs in as Delta ups Competition*, September 6, 2019.
[38] US DOT Form 41 Data, annual figures are Twelve Months Ended (TME) 3/31/Yr.

Graph 4



B. Two Recently Established Airline Hubs and A New Crew Base Being Established at Boston Logan Indicate the Inherent Strength of the Market

22. In June 2019, after years of increased flight activity in Boston, Delta Airlines formally named Boston Logan to be its newest connecting hub.[39] Although, Delta is not a party in this case, their choice to establish a new connecting hub at Boston is indicative of the opportunities the carrier sees in this growing market. The creation of Delta's hub at Logan was founded on the carrier's near doubling of flight operations in Boston over the past five years and the extremely favorable unit revenue growth at Logan that the carrier reported has been three-times higher than its average unit revenue growth in its overall domestic system.[40] [41] Delta is continuing to grow operations aggressively at Boston Logan this year and is expected to increase flights by 15.5% in 2019.[42] As one would expect of a growing hub, Delta has added

[39] TPG, *Delta Airlines Names Boston one of its Hubs*, June 3rd, 2019
[40] Ibid.
[41] Forbes, *Delta Plans Major Growth at Boston,* July 13, 2019
[42] TPG, *Can Delta and JetBlue Make Boston the Next Dual Hub City?,* August 2, 2019

numerous new flights to and from Boston recently, including new non-stop service to Miami, Chicago, Cleveland, Newark, Philadelphia, Washington, D.C. and new non-stop international service to Edinburgh, Scotland and Lisbon, Portugal, among others, as well as connecting service through its international alliance affiliates.[43] Delta has also announced it plans to expand new non-stop international service from Boston to London, Rome and Manchester, as Boston will soon have more Trans-Atlantic Traffic than Miami.[44]

23. Connecting hubs are the key operating feature of network airlines and the choice of city in which to position hubs is a key strategic investment based on favorable economics of local traffic demand and geographic position.[45] Over the next two years (by 2021) the carrier plans on continued growth at Boston, increasing its operations by 40%, to 200 flight a day.[46] Delta is also supporting this rapidly growth at Logan by expanding its Sky Club lounge and assuming for the first time, all operations at Logan's Terminal A.[47] [48]

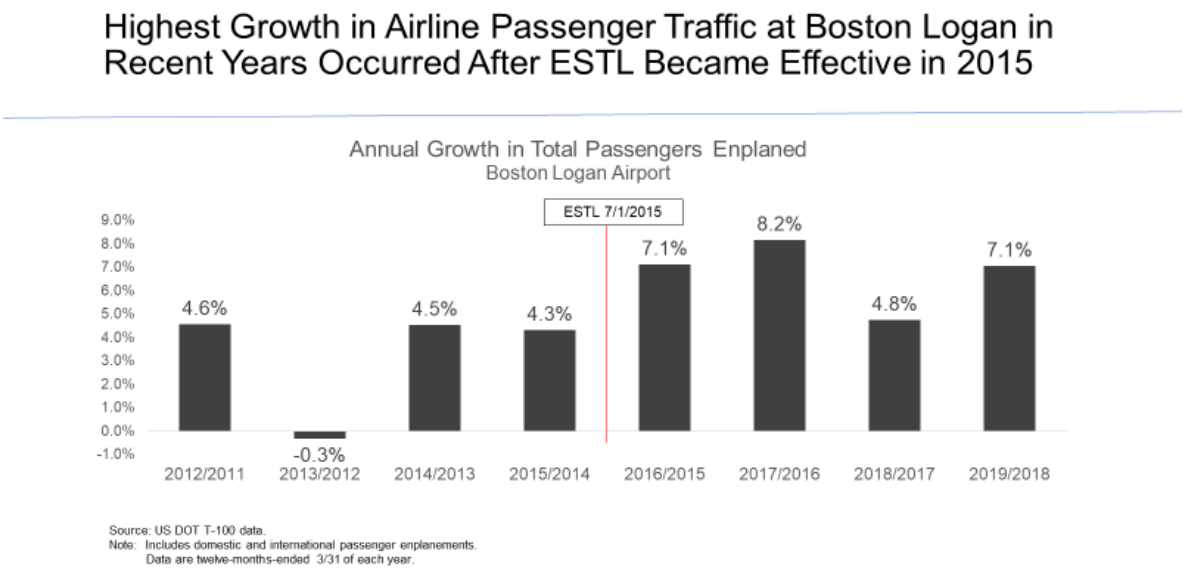
24. All of this activity portends an increased demand for crew basing at Boston. As airline operations grow, the number of crews available to staff and maintain those aircraft also grows. Delta's regional partner Republic Airlines has announced it is establishing new flight crew and maintenance bases at Boston Logan in December 2019 to support Delta's expanding hub operation.[49] None of these actions support the dire consequences purportedly resulting from ESTL that Dr. Lee predicts. As a result of this litigation, as well as a federal judges recent

[43] Ibid.; and Forbes, *New Delta Hub Means Boston is Set to Pass Miami in Trans-Atlantic Traffic,* November 12, 2019.
[44] Ibid.; and Delta Airlines News Hub, September 23, 2019.
[45] Wheeler. C., *Strategies for maximizing the profitability of airline hub and spoke networks*, Transport. Research Record #214.
[46] Forbes, *op. cit.,* July 13, 2019
[47] TPG, *Delta Doubles Down in Boston, Bigger Sky Club and New Routes*, December 10, 2018.
[48] Delta.com, *On a Roll in Boston: Delta Adds new Rome service, celebrates all Terminal A Operations at Logan Airport* September, 23, 2019.
[49] Business Wire "Republic Expands Operations with Delta Airlines", August 7, 2019.

decision in Washington State, all the carriers with crew bases in Boston must contemplate compliance with ESTL and have obviously gone ahead with their plans based on the strength of the market.[50] Delta's aggressive growth and the establishment of a new operations hub and crew bases at Logan prove ESTL is not a threat to continued vigorous growth in airline services or operations at Logan as Dr. Lee claims.

25. As shown in Graph 5, overall passenger traffic at Boston accelerated *after* the introduction of ESTL in July 2015 compared to years preceding the Law.

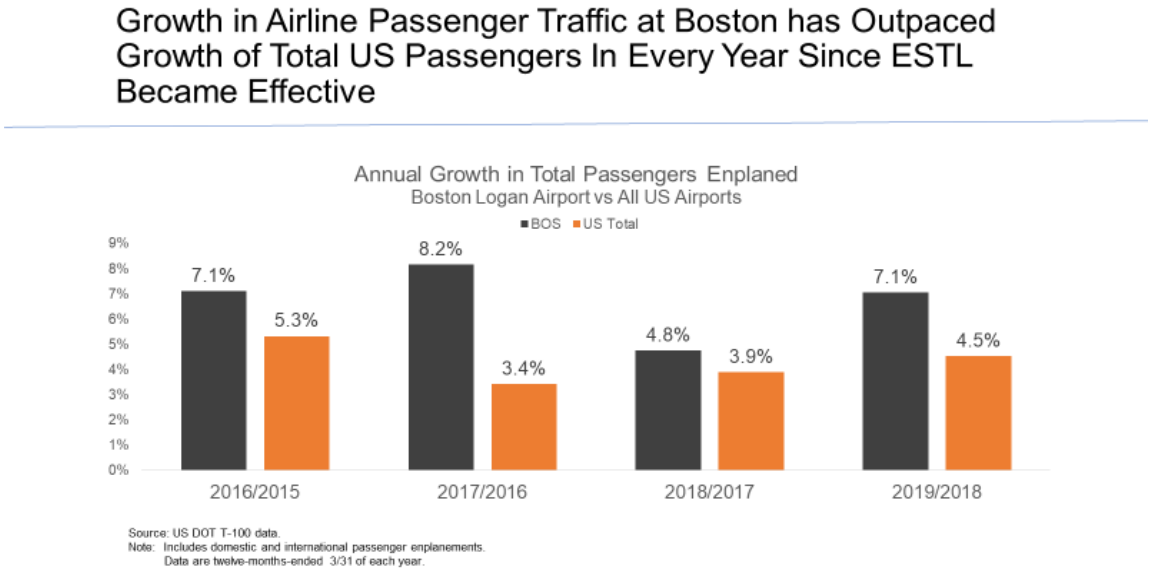
Graph 5



[50] On October 11, 2019 an A4A suit against a similar employee sick law in Washington state were comprehensively rejected in a federal judge's Decision in the US District Court of the Western District of Washington. dsupra.com/legalnews/u-s-district-court-rules-in-favor-of-85254/

26. In addition, the growth rate of passenger traffic at Boston Logan has outpaced traffic growth overall for the US in every year since ESTL became effective, as shown in Graph 6, below. Clearly, Dr. Lee has misstated the presumed impact of ESTL on airline operations.

Graph 6



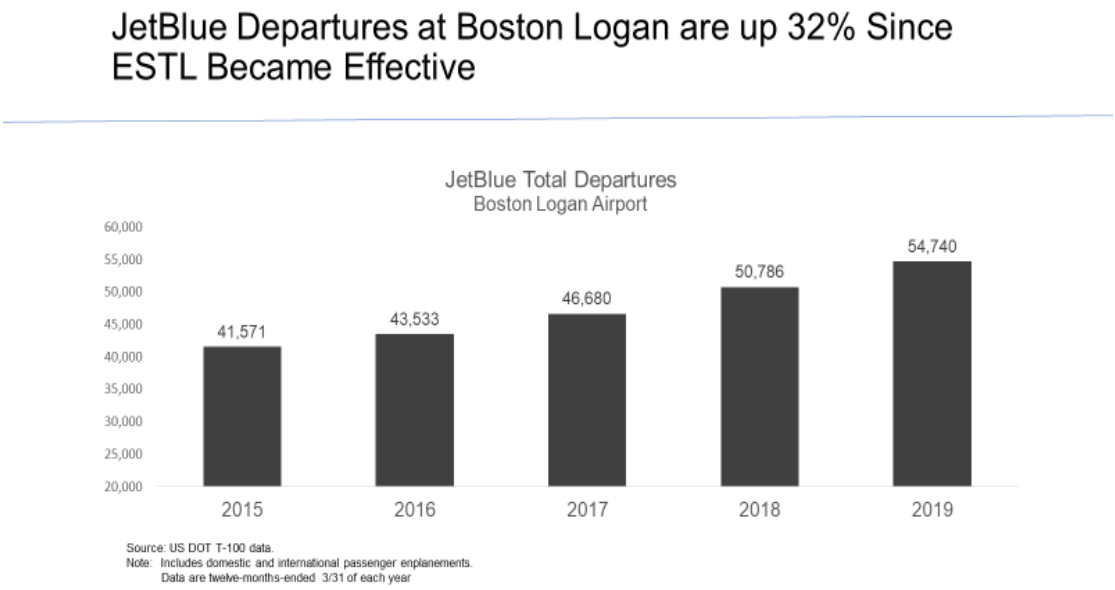
27. With Delta's recent announcement of its new hub at Boston, Logan airport became one of the few airports in the US to host the connecting hubs of two mainline carriers, as JetBlue has also rapidly increased its operations at Boston over the past few years, establishing a hub at Logan with 175 daily flights during peak season, pushing toward over 200 flights at Boston by 2020.[51] [52] JetBlue's planned expansion at Boston in 2020 represents an acceleration of its growth, as 200 daily departures would increase the carriers operations by 14.2% over 2019, which would be double the rate of average annual expansion of 7.1% since

[51] *Ibid.*

[52] *Delta Plans Major Expansion at Boston Logan, Where it Confronts JetBlue*, Forbes, July 13, 2019

2015.[53] This rapid growth for JetBlue at Boston is indicative of the attractiveness of the market and the carrier's plans for continued expansion at Logan builds upon the carrier's recent trajectory of increased operations. As shown in Graph 7 below, JetBlue's departures grew 32% at Boston since 2015.

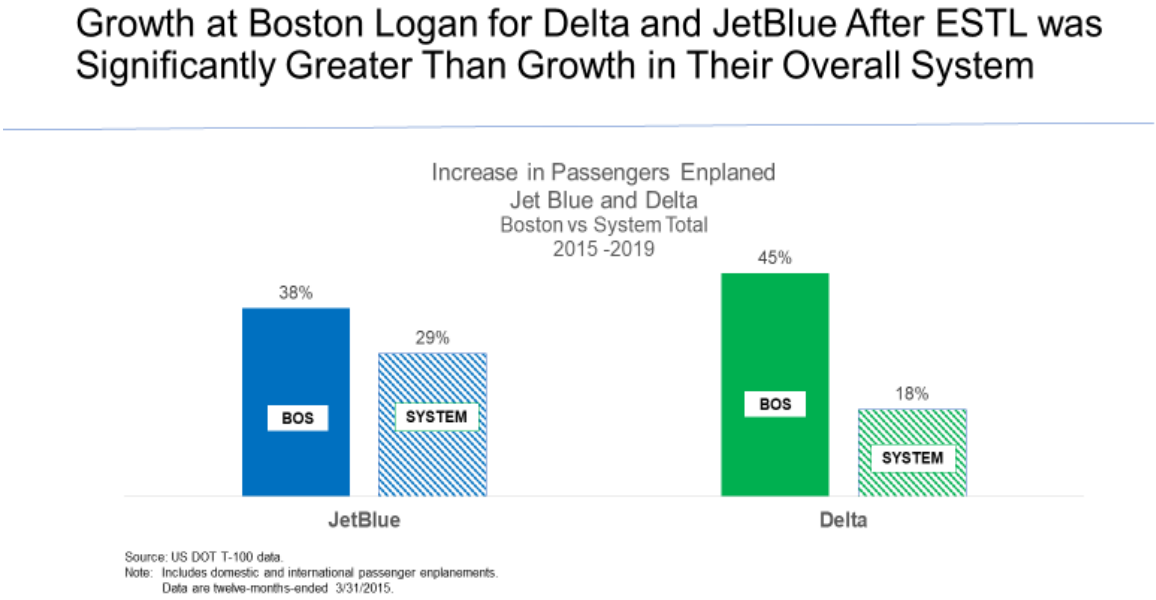
Graph 7



28. Furthermore, growth at Boston Logan for both JetBlue and Delta outpaced their growth in their overall operations in the period after ESTL became effective. As shown in Graph 8, since 2015 JetBlue's traffic at Boston grew by 38% overall, while its system overall grew at 29% (approximately one-third slower). Likewise, Delta's traffic at Boston in the same post-ESTL period grew by 45% compared to its system growth of 18%. In building its hub operations, Delta grew Boston 150% faster than growth in its system overall.

[53] US DOT T-100 data.

Graph 8



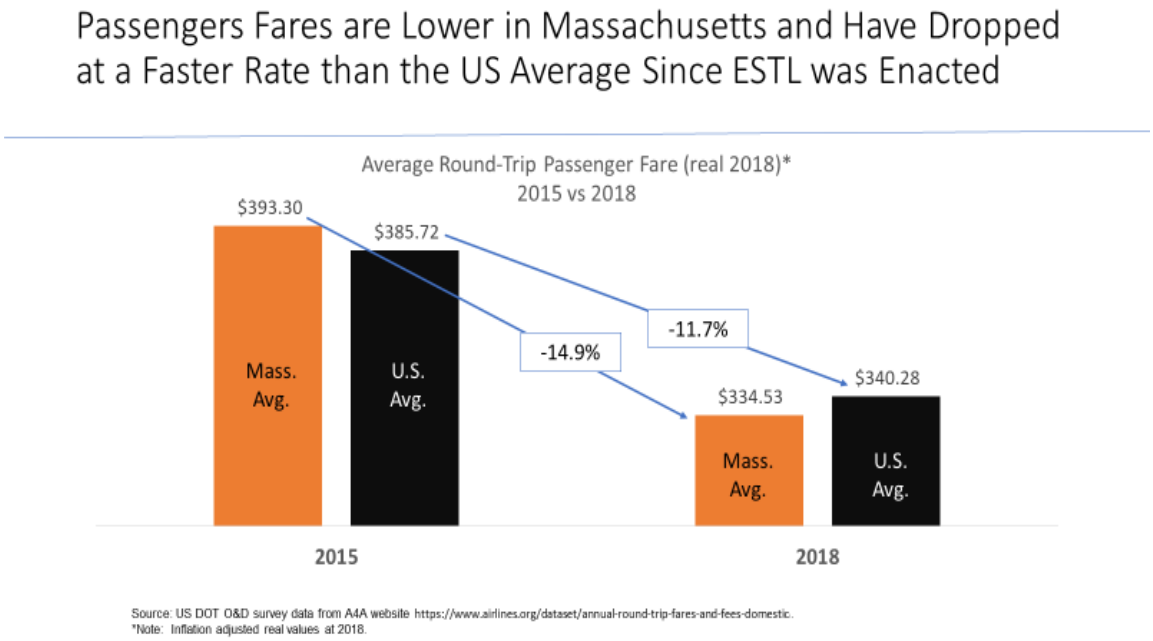
V. Airfares in Massachusetts are Below National Average Fares and have Decreased More Rapidly than in the U.S Overall since ESTL was enacted in 2015

29. Regarding the impact of ESTL on air fares, Dr Lee erroneously states, "*Simply put, as enacted and implemented, the Massachusetts Earned Sick Time Law would not only undermine carriers' abilities to offer reliable air service, but it also would result in fewer choices and higher fares for travelers.*[54] In addition to Dr. Lee's inaccurate opinions on the impact of ESTL on air carrier services, it appears that Dr. Lee's predictions are equally unfounded when it comes to the impact of the Law on passenger fares.

[54] Lee at Paragraph 48.

30. The average round-trip airline fare in Massachusetts in 2015 of $393.30 was higher than US average fare of $385.72.[55] However, the average air fares in Massachusetts dropped at a faster rate than the US average for each of the years following ESTL enactment, as shown in Graph 9, below. [56] From 2015 to 2018 average airline passenger fares Massachusetts declined by 14.9%, a rate that is 27% faster than the 11.6% drop in fares in the US overall.

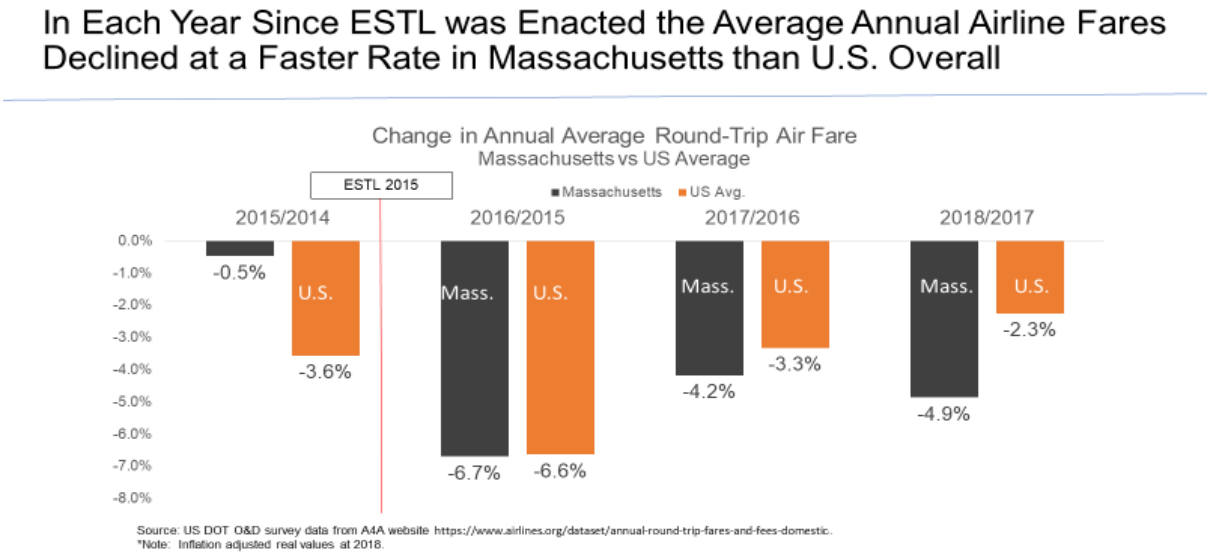
Graph 9



31. As shown in Graph 10 below, from data available from A4A's own web site, average round-trip passenger air fares in Massachusetts decreased at a much faster rate than U.S. overall average fares in each year since ESTL became effective.

[55] Inflation-adjusted at 2018 values from US DOT O&D survey data via A4A web site https://www.airlines.org/dataset/annual-round-trip-fares-and-fees-domestic/
[56] *Ibid.*

Graph 10



32. If carriers were forced to charge higher fares as a result of the passing through the purported compliance cost of ESTL, as Dr. Lee claims, passenger fares would not only be trending in the opposite direction, but they would likely be higher in Massachusetts than the average for the rest of the United States. The evidence since ESTL was enacted strongly suggests otherwise, as the inherent strength of the market indicated by the dramatic increase in operations at Boston over the past several years appear to have increased competition and caused greater pressure on fares than in the U.S. overall. These events have dramatically increased consumer benefits to Boston airline passengers through expanded services on more routes at lower fares. Exactly the opposite outcome of the central thesis in Dr. Lee's report.

VI. A4A Carrier Compliance with Massachusetts Sick Leave Law Has Not and Will Not Cause Material Financial Impacts on Airline Costs or Passenger Fares Claimed by Dr. Lee

33. As discussed above, one reason the potential impact of ESTL is a marginal one stems from A4A carriers continuously facing operational challenges and have developed certain safety nets and back-up systems which are utilized regularly to maintain operational integrity. These include the ability to position reserve employees throughout their operation to provide coverage for unforeseen events and flight crew staffing shortages. A4A carriers are able to increase reserve flight crew staffing coverage to minimize risk to operation at minimal cost, or they could deploy more reserve employees to the airport. Either way the cost of operational coverage would be pennies per flight and likely not affect fare level, service, consumer demand or choice, and not impact service at BOS, as appears to have happened.

34. If air crews increase sick leave usage or reduce their sick leave notification times once they are protected from disciplinary action under ESTL, airlines have several options including, shifting more of their flight crew reserves to "ready reserve" status, and potentially hiring a marginal amount of new employees to ensure operational integrity. The cost consequences of either option would be extremely limited, and the marginal cost increase would not meaningfully impact fares.[57] Despite the fact that airlines have set record levels of profitability during the past several years, Dr. Lee claims that A4A carriers could not afford to hire additional employees without reducing service or passing on the impact to passengers in

[57] Lee in paragraph 72 cites the 1.2% increase in Virgin America's cabin crew delays which would suggests that approximately 4 more flights per day will be delayed out of the average of 302 flights operated by A4A carrier departures at BOS. Source: US DOT Form 41 Data TME 3/31/2019.

the form of higher fares.[58] [59] He makes this claim without any analysis as to the number or cost of such employees, and he generally ignores the effectiveness of tools that are in place to counter staffing challenges faced by airlines every day.

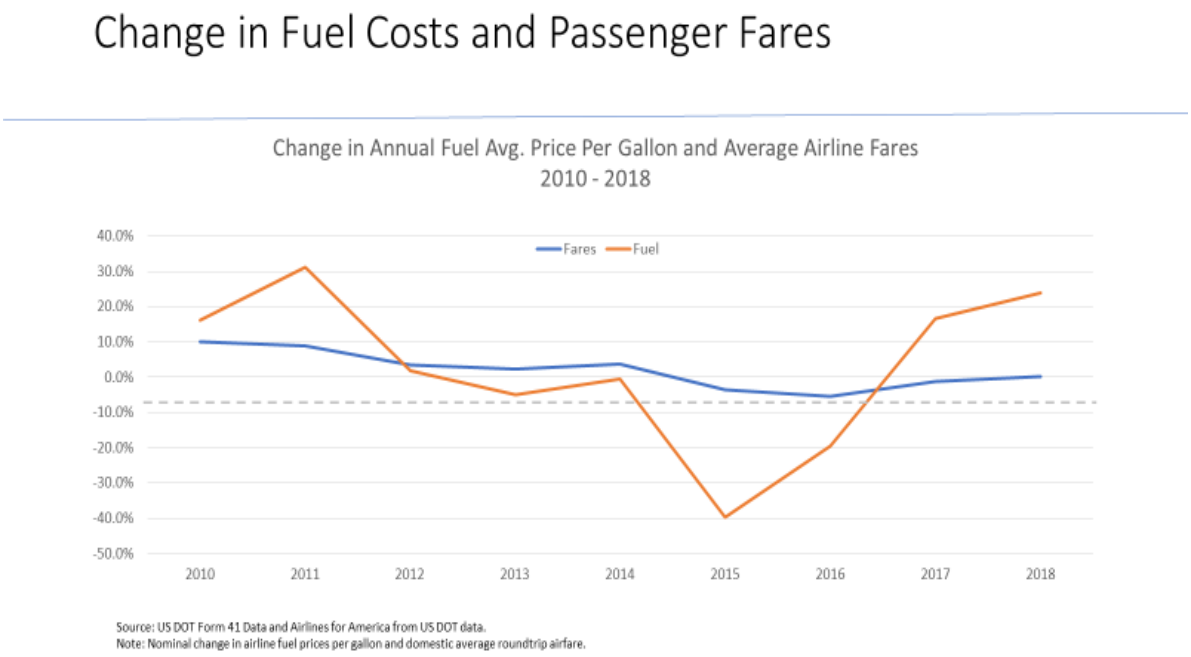
35. US airlines combined generated well over $160 billion in both total operating revenues and expenses, and over $17.5 Billion in operating profits in 2018.[60] Collectively A4A carriers employed over 281,000 employees in 2018 at a cost of $37 in wages and related benefits.[61] To assert that the potential hiring of a small number of employees to cover potential increased sick leave use will cause operating costs to increase to an extent that fares increase and cause a noticeable decline in passengers and services is not credible, nor proven. Airlines contend with significant variability in fuel prices, which can cost A4A carriers billions, without directly passing on dramatic fuel price cost increases (or savings) to consumers.[62]

36. As shown in Graph 11, below, changes in average annual fuel price per gallon paid by U.S. airlines is compared to changes in average airline round-trip passenger fares. The average fuel price per gallon has varied tremendously from year-to-year while average passenger fares have remained relatively stable by comparison. For example between 2010 to 2011 average per gallon fuel prices paid by airlines shot up by approximately 30%, and from 2014 to 2015 fuel decreased by nearly 40%.[63] In the same time periods, average fares increased by only 8.8% in 2010 to 2011 when fuel prices skyrocketed, and decreased by only

[58] Lee at paragraph 42.
[59] A4A data, Airline annual financial performance from US DOT Form 41 data, https://www.airlines.org/dataset/annual-results-u-s-passenger-airlines/
[60] *Ibid*.
[61] US DOT From 41 data.
[62] *Ibid.*
[63] *Ibid.*

3.5% between 2014 to 2015 when fuel prices declined dramatically.[64] This behavior highlights the fact that airlines faced billions in fuel cost increases and retained billions in savings from fuel price decreases, rather than pass the full effect of cost changes on to their passengers. As is discussed below, the potential marginal cost increases related to new hires Dr. Lee claims pales by comparison.

Graph 11



37. From the graph above it should not be a surprise to note that 2015, the year in which there was a dramatic drop in fuel prices, was also the year when the U.S. airline industry posted all-time, record net income of nearly $25 Billion, as airlines retained the savings from billions in fuel cost decreases rather than pass the savings along to their customers.[65]

[64] A4A data from US DOT OD1B data base.
[65] A4A data from US DOT Form 41.

A. Impact of Hiring on Costs and Fares

38. Without offering any evidence or analytical calculation Dr. Lee speculates on page 48 of his Report; *"Moreover, to the extent that airlines could partially mitigate these adverse service-related effects by hiring additional flight crew and ground employees, carriers would pass along some portion of the compliance-related cost, thereby affecting airfares".*[66]

39. Perhaps one reason Dr. Lee does not attempt to estimate the potential cost of covering increased use of employee sick leave or the potential impact on passenger fares he claims would result, is because the impact is negligible. One can provide an estimate of the financial impact from an analysis of data related to Dr. Lee's claim of a 1% to 2% increase in flight delays during Flight Attendant high sick leave periods.[67] The results show that if such Flight Attendant high sick leave periods were made permanent due to ESTL, the cost of increased staffing needed to offset such increased delay exposure at Boston would be approximately 0.01% to 0.05% in annual Flight Attendant costs for all five A4A carriers combined.[68] This calculation is shown in Table 1 below.[69] Dividing these costs into the number of annual passenger enplanements at BOS the average impact on fares would range from an estimated 6 cents to 25 cents, if these potential costs were passed directly to passengers. Hardly the type of impact that would cause a decline in operations or increase in passenger fares, that the empirical data have confirmed. This of course assumes that airlines do not decide to utilize another way to cover this purported exposure to potential reduce notification times by shifting more employees on reserve at home to airport "ready" reserve.

[66] Lee at paragraph 42.
[67] Lee at pages 12 and 13.
[68] US DOT Form 41 Data.
[69] *Ibid*

Table 1. Estimation of Cost to Hire Additional Flight Attendants

Increase in Delays (a)	2019 Departures (b)	Daily Flights Affected ©	Avg. New Hire F/A (d)	F/A Heads Needed (e)	Annual F/A Cost (f)	Total Passengers (g)	Fare Impact (h)
1%	110,364	3.0	$43,361	18	$786,118	12,811,876	$0.06
2%	110,364	6.0	$43,361	36	$1,572,236	12,811,876	$0.12
			Avg F/A $ (i)				
1%	110,364	3.0	$88,280	18	$1,600,482	12,811,876	$0.12
2%	110,364	6.0	$88,280	36	$3,200,964	12,811,876	$0.25

Source: US DOT Form 41 T-100, Schedules P7, P5.2, and P10, current Flight Attendant pay tables, Dr. Lee Report at page 13.

Notes: (a) % of increased flight delays from Dr. Lee Report page 13

(b) 2019 Departures is DOT-T-100 for A4A carriers TME 3/31/2019.

(c) Additional number of departures (1 to 2%) purportedly delayed by increased sick leave use.

(d) New hire Flight Attendant expense based on avg. new hire salary at 1000 hrs./yr. for A4A carriers and 35.5% benefits expense.

(e) Estimated Number of F/As based on 3 day pairing and 15 days of assignment per month per reserve.

(f) Annual cost is daily flights times new heads required to offset delays

(g) Total passengers at BOS for A4A carriers in 2019 TME 3/31/19.

(h) Fare impact if 100% of cost of increased F/A coverage were passed onto fares (f/g).

(i) Avg. Flight Attendant cost for A4A carriers in 2018 - US DOT F -41.

40. This analysis concerns Flight Attendants as an example of minimal cost and carrier flexibility to address short staffing issues. Similarly, small impacts can be expected from pilot and ground crew compliance costs. Every carrier closely monitors the balance of available standby Flight Attendants and operational demands for them. The proper balance is one which ensures operational integrity without excess standby staffing. Standby staffing varies from carrier-to-carrier, base-to-base, day-to-day, informed by experience and monitored through sophisticated systems which continually assess operational needs. No carrier can exactly match its standby pool of Flight Attendants to the varying day-to-day demands of coverage. However, maintaining the integrity of the operation greatly outweighs the expense of having additional standby Flight Attendants who, unless assigned to flight duty, remain available on the ground waiting to be assigned. Ensuring carrier operational integrity through

having adequate standby Flight Attendant staffing is a marginal potential change in carrier operating expense.

VII. Dr. Lee Underestimated the Ability of Airlines to Effectively Counter Staffing Shortage and Overstates the Impact of Short Staffing on Air Carrier Operations

41. On page 50 of his Report Dr. Lee initiates an exploration of the methods that airlines utilize to offset unpredictable staffing shortages of air and ground crews, especially as related to ensure reliable flight performance. In this section Dr. Lee purposefully minimizes the ability of air carriers to respond to daily staffing shortages and, despite subsequent results from his own analysis of the showing the marginal impact of sick leave on flight delays, he overstates the impact such challenges present to air carrier operations.

42. The unexpected shortage of employees occurs every day at A4A airlines without the dire consequences predicted by Dr. Lee. A4A carriers have deep operating experience and sophisticated staffing tools to avoid delays and cancellations. [70] In his Report, Dr. Lee repeatedly claims that flight crew and ground worker sick leave use will cause extensive operational disruptions that can last for days.[71] This claim is not supported by any evidence or the results of his own statistical analysis, and in practice, is unlikely to occur given the staffing flexibility and operational tools A4A carriers utilize every day.[72] In fact, carrier abilities to offset staffing shortages are likely the reason that the results of Dr. Lee's own analyses of the impact of employee sick leave use are so modest.[73] As part of their daily business airlines face operational issues and unexpected employee absences which can create staffing challenges. To offset these

[70] Most employees at A4A carriers are unionized and are governed by collective bargaining agreements which contain work rules that allow their employers to address critical staffing issues through a variety of staffing procedures besides reserve.
[71] Lee at paragraph 58
[72] For example, Virgin America's Flight Attendant sick leave use in New York city increased dramatically in 2017 for a wide variety of reasons, and cabin crew related delays only marginally increased. See Lee at paragraph 72.
[73] Lee at paragraphs 66, 72, and Exhibit 22 and 23, where pilot sick leave was not statistically significant.

challenges A4A carriers maintain a portion of their employees as supplemental or standby flight crews and possess other means to facilitate employee substitution when they experience operational disruptions.[74]

43. However, on page 51 of his report, Dr. Lee contends that " *when a pilot or flight attendant calls in sick, another pilot or flight attendant must be found to cover the sick pilots of flight attendants responsibilities*".[75] The idea that a pilot or flight attendant must be "found" is absurd, the implication of which is fundamentally at odds with the highly sophisticated and systematic procurement of standby employees to counter airline flight crew staffing challenges. Replacement employees don't need to be found, rather "assigned" is a better term.

A. Effective Functioning of Airline Employee Reserve Systems

44. Perhaps the best assessment of the success of the tools airlines deploy to minimize the potential impact that staffing shortages have on their operations can be seen in the results of the various analyses Dr. Lee presents in his Report. Dr. Lee's investigation of the impact of employee sick leave on delays from Virgin Flight Attendants in New York, and A4A carrier Flight Attendants and Pilots, all demonstrate the extremely modest increases in flight delay rates of approximately of 0.08 to 2.5 percentage points.[76] These marginal impacts on carrier operations from increased employee sick leave use are a testament to the functionality of these staffing systems.

45. Airline staffing systems support reliability and efficiency of their operations, as airlines employ a standby supply of Flight Attendants and Pilots to be available on short notice to

[74] Lee at paragraph 47.
[75] Lee at paragraph 46.
[76] Lee at Exhibits 18, 22, 23 and paragraph 72.

fill in for flight crew members that, for a wide variety of reasons, are unable to fulfill their previously scheduled flight service. These standby employees are generally required to be stationed at an airport in uniform on "ready" reserve or at a location nearby to respond to short notice unavailability of flight crews. Employees assigned to reserve duty are ready and available in bases strategically placed around each airlines network, and are available to work in a moment's notice, or short period of time, and are dedicated to fill short term staffing vacancies. The reserve system provides standby employees to cover unexpected flight crew staffing shortages on upcoming flights.[77]

46. Pilots and Flight Attendants who are assigned to serve as reserves do so for a specified number of hours and typically are paid a set minimum "guarantee'' amount, unless and until they are assigned to fill in for a flight crewmember who is unavailable for duty. Typically, airlines assign between 10% to 20%, or more, of their flight crew employees to reserve duty, usually at hubs where the majority of airline flights operate. The staffing levels of standby crews varies by each airline, base, time and according to other operational considerations. A4A carriers have the ability to readily adjust the deployment and utilization of standby employees to accommodate changes in employee sick leave and late notification to avoid operational impacts. This flexibility includes a relatively cost-free shift in the balance of employees toward more ready reserves stationed at the airport if more short notice sick calls occur.

[77] For example, See, Section 12 of American Airlines – APFA Flight Attendant CBA, effective December 14, 2014, Section 15-J of American Airlines- APA pilot CBA effective January 30 , 2015, Section 25-R of JetBlue pilot CBA effective, August 1, 2018, Section 8 and LOA 23 of United – AFA Flight Attendant CBA, effective August 28, 2016, Section 9 JetBlue Flight Attendant Blue Book (Work Rules) Revision 33, April 9, 2018, and Section 8 of Southwest Airlines – SWAPA pilot CBA effective Sept. 12, 2012.

B. Ground Based Employee Staffing Contingencies

47. For ground-based employees such as mechanics, baggage handlers, customer service agents, aircraft provisioners, and Dispatchers, airlines also possess tools to avoid operational impacts of unexpected staffing issues. The link between ground staffing shortages related to sick leave use and operational delay is not the subject of Dr. Lee's analytical assessments as with flight crews, yet Dr. Lee contends, without supporting evidence, that the threat of service disruption which impacts interstate and international commerce results from ground employee access to paid sick leave provisions of ESTL.[78] Recent results at Boston highlight the success of airline staffing tools to minimize operational impacts. [79]

48. Since the staffing of most ground crew employee services is not as directly impactful as the services of flight crews, the effect on flight operations is somewhat less tangible. As with flight crews airlines have extensive ability to adjust staffing of ground crews to overcome potential staffing issues through the following measures, among many others;

1. Voluntary and Mandatory Overtime Assignments
2. Job Continuation Assignments
3. Voluntary Shift Trades
4. Temporary Staffing and Upgrade Assignments
5. Supervisory Coverage
6. Relief Shifts, etc.

49. Airlines routinely use voluntary and mandatory overtime work assignments, voluntarily shift trades to help avoid staffing shortages, among other measures.[80] When

[78] For example, Dr. Lee on page 9 of his Report states; "*Thus, when there are insufficient aircraft mechanics available to perform FAA-mandated maintenance on an aircraft due to high numbers of mechanics using sick leave, flights departing from Massachusetts (which are overwhelmingly bound to destinations outside of Massachusetts) can be delayed or cancelled, disrupting the travel plans of passengers and adversely impacting interstate and international commerce*."

[79] See Section IV of this Report

[80] For example, see Article 7 of United – IBT Technicians CBA effective 2016-2022, and Article 4 of United Airlines-IAM Fleet Services CBA, which allows for the airline to have an employee to miss a meal period, either voluntarily or as required due to extraordinary operational necessity. See Appendix C of this report for some other examples of staffing coverage tools.

maintenance or other ground employee staffing is short or when tasks need to be completed A4A carriers such as United have a variety of tools to address these situations. Employees wishing to increase opportunities for higher earnings can sign up for specific shifts and work on voluntary overtime assignment "call sheets". If staffing shortages occur the names of those on the call sheet will be considered available for work based on the needs of the airline and their particular work "bid" area.[81] If a task is underway at the end of a shift United management deems the task can be completed in 3 hours or less, the employee may be required remain at work to continue the task to completion.[82] Work needs that are not considered a continuation of current shift in progress can also be assigned by United managers to those on the voluntary call out sheet.[83] In addition if there are insufficient employees sign up on the voluntary overtime call-out sheet to cover work during a shift, managers can solicit employees to volunteer for such work.[84] If insufficient numbers of workers volunteer after manager solicitation, overtime can be assigned in reverse seniority order to those from a particular bid area who are not working on current shift.[85]

50. This approach to filling staffing shortages requires a higher per hour payment to employees, which increases opportunities to those who wish to earn higher incomes, but also affords management to have fewer full-time employees assigned to cover the peaks and valleys of workloads over time. The opportunity for employees to volunteer for higher paying overtime work is generally augmented with various types of mandatory assignments made by

[81] See Article 6, Section H, paragraph 4, of the United Airlines - IBT Technicians CBA, effective 2016-2022.
[82] *Ibid*. paragraph 5. Job continuation.
[83] *Ibid*. paragraph 6.
[84] *Ibid*. paragraph 6b.
[85] *Ibid*. paragraph 6c.

management to ensure sufficient staffing is available for work. For example, Southwest ramp employees (bag handlers) can be assigned overtime work by management without prior notification "*when normal station operation are jeopardized*". [86] Airlines may view the balance that higher costs of overtime work are at least partially offset with the costs of adding more staff to cover such work. That has been my experience in collective bargaining of ground employees.

51. Temporary employee assignments can offset staffing shortages during periods of need by shift or over several months.[87] In certain contracts employee supervisors can also cover shifts if staffing needs warrant.[88] Some airlines can also use relief shifts to assign ground employees to provide additional coverage during work shifts that may need additional staffing, similar to reserve assignments for flight crews.[89] Employee cross-utilization to cover shortages in particular work areas is also a way to maintain staffing levels of ground employees.[90]

C. Dr. Lee Overstates the Impact of Sick Leave Laws on Ground Crew Employees at LAX and Provides No Evidence of Claimed Operational Impact

52. In an attempt to fortify his claim of the dire effects of ESTL, Dr. Lee posits the experience of American Airlines ground crew employees sick leave usage at LAX as an example of the disruptions and ill effects sick leave laws impart on airline operations. He alleges this without providing any link between changes in sick leave use and AA operations at LAX. Dr. Lee inflates the appearance of small changes in AA's ground employee sick leave use into dramatically large relative changes that he asserts result from AA compliance with Los Angeles paid sick leave law. And does not link these changes to his claimed operational impacts.

[86] Southwest Airlines – TWU 555 Ramp, Provisioning and Freight Agents Agreement, 2016-2021, Article 17.D.
[87] United Airlines Fleet Service Agreement 2016-2012, Article 1.E.
[88] Southwest Airlines – TWU 555 Ramp, Provisioning and Freight Agents Agreement, 2016-2021, Article 2.B.
[89] *Ibid. Section 2*
[90] United IBT Technicians contract, 2016- 2022, LOA #6, paragraph C and LOA #12, paragraph 3. A.

53. On page 79 of his report Dr. Lee erroneously claims, "*Indeed, there have been a number of examples of where a state or local jurisdiction's paid sick leave laws have led to increased absences among ground employees which, in turn, has led to disruptions for passengers and/or other ill effects."*[91] He makes these assertions without demonstrating a link to the passenger disruptions and ill effects he claims. In fact, and to the contrary, US DOT on-time performance data indicate a decrease in delay time at LAX following AA's compliance with sick leave laws.[92]

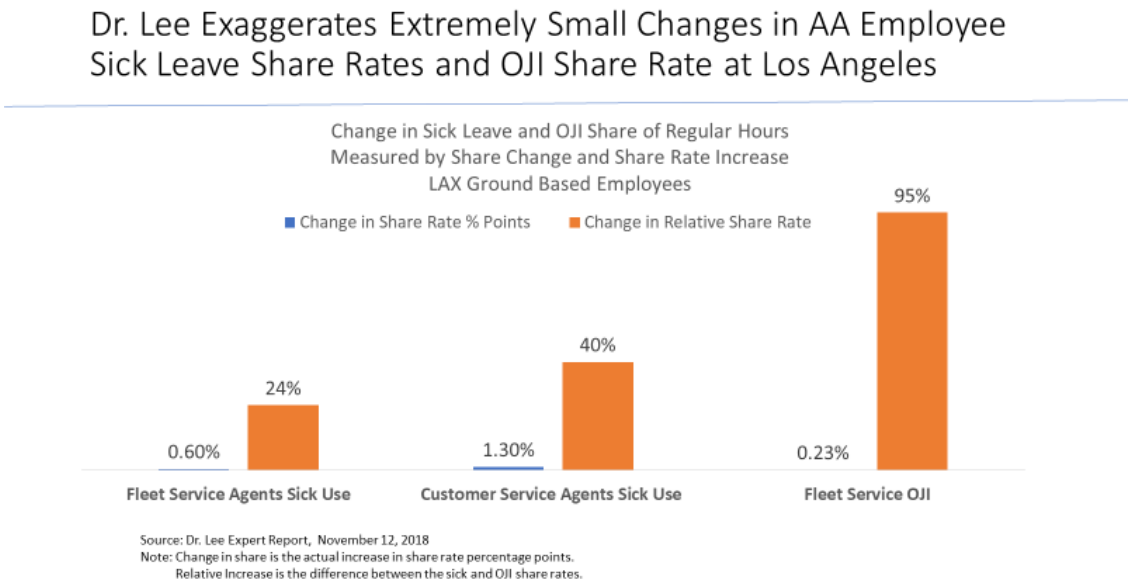
54. Dr. Lee attempts to illustrate that marginal changes in American Airline's ground employee sick leave use, purportedly tied to Los Angeles Sick Leave Law, have affected the carriers' operational performance at LAX. Unlike his analysis of flight crew sick leave on operational delays, Dr. Lee provides no such analysis for ground crews. Instead he exaggerates the small marginal changes in American Airlines ground worker sick leave share with the much larger changes in relative shares to support his claims in the following manner.

55. Dr. Lee states; *"Between 2015 and 2017, sick time as a proportion of regular paid time increased from 2.5% to 3.1% (an increase of 24%) for fleet service agents at LAX and increased from 3.3% to 4.6% (an increase of 40%) for passenger service agents at LAX*".[93] In this example, Dr. Lee creates the impression that a small increase in sick leave use of 0.6 percentage point for fleet service workers is actually a much larger 24% increase in sick leave

[91] Lee at paragraph 77.
[92] See Graph 13, below.
[93] *Ibid.*

use, when it is clearly not. Likewise, he overstates a marginal 1.1 percentage point increase in passenger service sick leave use at LAX as a 40% increase in sick leave use.

Graph 12.



56. Graph 12 shows the actual change in share rates change and the relative change in rates Despite his claim of operational impacts stemming from LAX's sick leave law on operations, he does not tie these extremely modest changes in ground worker sick leave use to any operational data. There is likely a reason for this, there isn't one.

57. As shown in Graph 13, below, are US DOT On-time performance data relating to American Airlines total reported quarterly delay time at LAX in the periods immediately before and after the carrier's compliance with Los Angeles sick leave law. As shown, there is a marked decrease in AA's total delay time over this period. AA's quarterly average delay minutes after compliance with ESTL drops by approximately 24% from the average quarterly delay time prior

to compliance.[94] Again here, it appears that the staffing tools that AA possesses which successfully offset marginal changes in sick leave use.[95]

Graph 13

58. On page 81 of his report, Dr. Lee then suggests that the use sick leave by ground workers is demoralizing to the workforce and is dangerous to those who work their shifts. Here, at paragraph 78, Dr Lee again employs the techniques to expand minor changes in to exaggerate small increase, this time for On-the-Job-Injuries (OJI). Dr. Lee speculates, *"When there are increased absences among ground workers, it is more difficult for the employees who do work as scheduled to do their jobs effectively and safely. Indicative of the challenges faced by the employees who have worked as scheduled while their colleagues have called out sick at increased rates, the on-the-job injury rate ("OJI") nearly doubled for American's LAX fleet service agents between 2015 and 2017 (i.e., when the use of sick time by fleet service workers at the*

[94] US DOT On-Time Performance data.
[95] See Articles 43 (l) and 46 (f), American Airlines – TWU CBA for fleet service employees, effective Sept. 12, 2016.

airport increased by 24%). Again, here Dr Lee uses a marginal change of 0.23 percentage points in share rate , (from a share of 0.24% in 2015 to 0.47% share in 2017) and claims it *"nearly doubled*". Accurate on a relative scale, but nonetheless misleading. As with other LAX based ground workers Dr. Lee does not provide any basis that these OJI changes had an impact on American Airlines' operations at LAX.

59. Additionally, and without use of his typical statistical analysis, Dr. Lee tacitly infers OJI increases occurred as a result of *"increased absences"* caused by increases in employee sick leave use without any evaluation of a causal association. [96] Dr. Lee introduces the unsupported relationship of sick leave related "absences" with increased OJI rates without substantiating that OJI increases occurred during periods of inadequate staffing. At the top of paragraph 78 Dr. Lee claims; *"When there are increased absences among ground workers, it is more difficult for the employees who do work as scheduled to do their jobs effectively and safely"*[97]. No data regarding sick leave related absences, or short staffing is provided by Dr. Lee to support his contention. As with Dr. Lee's repeated and false claims of large operational impacts resulting from increases in sick leave use by flight crews , the example at LAX highlights the carrier's ability to offset such purported changes with a variety of staffing tools the utilize every day to address variability in their operations and staffing.

D. Sick Leave Use by Ground Employees at Boston Do Not Cause OJI Injuries

60. At page 81, Dr. Lee makes a similar claim for ground workers at Boston as he asserted for American Airlines' ground workers at LAX. Dr. Lee clams an increase in sick leave

[96] Lee at paragraph 78.
[97] *Ibid.*

use of 1.33 percentage points (from 2.24% to 3.57%) among AA fleet service workers are causally related to a 1.1 percentage point increase in OJI. He displays the relationship of increase between the two somehow small increase in his Exhibit 21 (page 82) and uses two separate indices, one on each side of the graph, to match up the percentage point changes in sick leave share and OJI share for intended effect. It is true that both sick share and OJI share are increasing, but as Dr. Lee well knows, correlation is not causation. He provides no evidence of causal relationship between the two, linking staffing issues to OJI incidence.

E. Dr. Lee Provides no Link Between Employee Sick Leave Use and Flight Cancellations

61. Despite his oft repeated claim that employee sick leave use causes cancelations, Dr. Lee does not provide any supporting evidence of this purported impact anywhere in his Report. On page 52 Dr. Lee contends that reserves are maintained as a final line of defense to mitigate flight delays and cancellations, but claims that a "*when a pilot or flight attendant calls in sick por is otherwise unavailable close to his or her scheduled departure time, the flight is often delayed or cancelled.*…"[98] He bases his statement on the Declaration of American Airlines VP of Labor Relations, Ms. Simone, who claims "*Flight Attendants are rarely on 'standby' at the airport where a service disruption is occurring'.*[99] The deployment of ready "standby' reserves to counter short-notice staffing issues is entirely under the control of American Airlines management. APFA, American's Flight Attendant union contract states, " *the number of standby shifts designated by base will be determined by Crew Schedule*".[100] Since the vast majority of

[98] Lee at paragraph 47
[99] Simone Declaration at paragraph 5.
[100] See Section 12, F.3., American Airlines – APFA CBA, effective December 13, 2014.

American Airline's flights begin or end at a hub and/or crew base, it would appear that the incidence of unfilled vacancies on such short notice sick calls is limited.

62. The APFA contract defines standby *"as a Reserve who has been awarded or assigned Standby duty in uniform at the airport without a specific flight assignment for the purpose of covering a sequence in order to prevent a delay. A Standby may also be utilized for the purpose of deplaning, boarding or remaining with through passengers on the aircraft*."[101] Again, it should be noted, despite his claims regarding employee sick leave causing flight cancellations, Dr. Lee's report does not identify any relationship between employee sick leave use and flight cancellations.[102]

63. A4A carriers utilize their networks to their advantage to connect crews to aircraft where they are needed and isolate problems in order to prevent downstream impacts from occurring. Dr. Lee does not consider the advantage possessed by A4A carriers' ability to utilize their networks to minimize such risks through a wide variety of safety nets and circuit breakers. Most A4A carrier crew bases are interconnected by frequent non-stop flights which allows airlines to substitute staff rapidly from one base to another should circumstances demand. Connecting service over hub cities also allows A4A carriers to provide passengers access to alternative routings should a flight become delayed or cancelled. Network operations can be an advantage in preventing disruptions.

[101] *Ibid.* Section 2. VV.

[102] Lee at paragraph 67; *"While there is a clear and statistically significant effect of flight attendant absences on flight delays, data limitations create challenges in establishing a statistical historical link between flight cancellations and flight attendant absences*".

VIII. The Prevailing Level and Variation of Flight Delays at Boston

64. Given the high level of variability in day-to-day airline operations at any large airport, where delays can affect as many as 50% to 60% of scheduled flights for a wide variety of reasons, the purported impact of employee sick leave laws on operations, if any, is likely lost in the background variability of delay volumes.[103] Due to geography, weather and the size of operations at Boston, Logan airport has one of the highest flight delay rates in the U.S.[104] According to U.S. DOT data, these delays occur largely due to air traffic control issues, weather and late inbound aircraft.[105] The relative impact of any purported change in flight delays should be assessed and measured against the existing level and variation of flight delay at BOS. The marginal change in flight delays claimed by Dr. Lee purportedly resulting from ESTL compliance, are well within the range of existing variation in monthly or daily delays would not be impactful, or even likely noticeable by A4A carriers or their passengers.

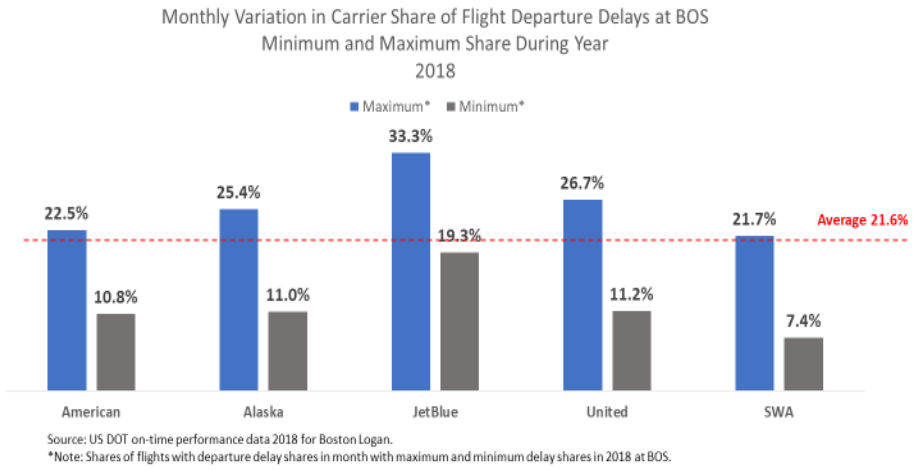
65. As shown in Graph 14, the monthly share of departing flights that were delayed in Boston averaged 21.6% for all A4A carriers combined in 2018 and varied greatly between carriers and time periods.[106] The share of flights with delayed departures operated by A4A carriers varied by an average of 14 percentage points between the month with lowest average delay share to month with highest average delay share in Boston in 2018. This variation in existing delay share is approximately 7 to 14 times greater than the 1 to 2 percentage points increase in delays asserted by Dr. Lee as caused during periods of high Flight Attendant sick leave use.[107] This

[103] US DOT On-Time Performance data for A4A air carriers at Boston in January 2018 (D15).
[104] Digg,, *The US Airports Most Likely to Delay Your Flights, Charted*, by BJ Pang Chieh Ho, November 20, 2018
[105] FAA Airline Service Quality Performance System, 2018 BOS ASQP Report https://aspm.faa.gov/asqp/sys/Airport.asp
[106] US DOT Ontime Performance Statistics delayed by 15 minutes or more (D15).
[107] Lee a paragraph 66.

marginal increase of 1 to 2 percentage points in the share of delays asserted by Dr. Lee due to high Flight Attendant sick leave use is much less than the existing range variation in delays at Boston, and therefore is very likely to be lost in the background of high incidence and variable flight delays at Boston.

Graph 14

Monthly Variation in A4A Carrier Flights with Departure Delays in Boston During 2018 Ranged on Average by 14 Percentage Points

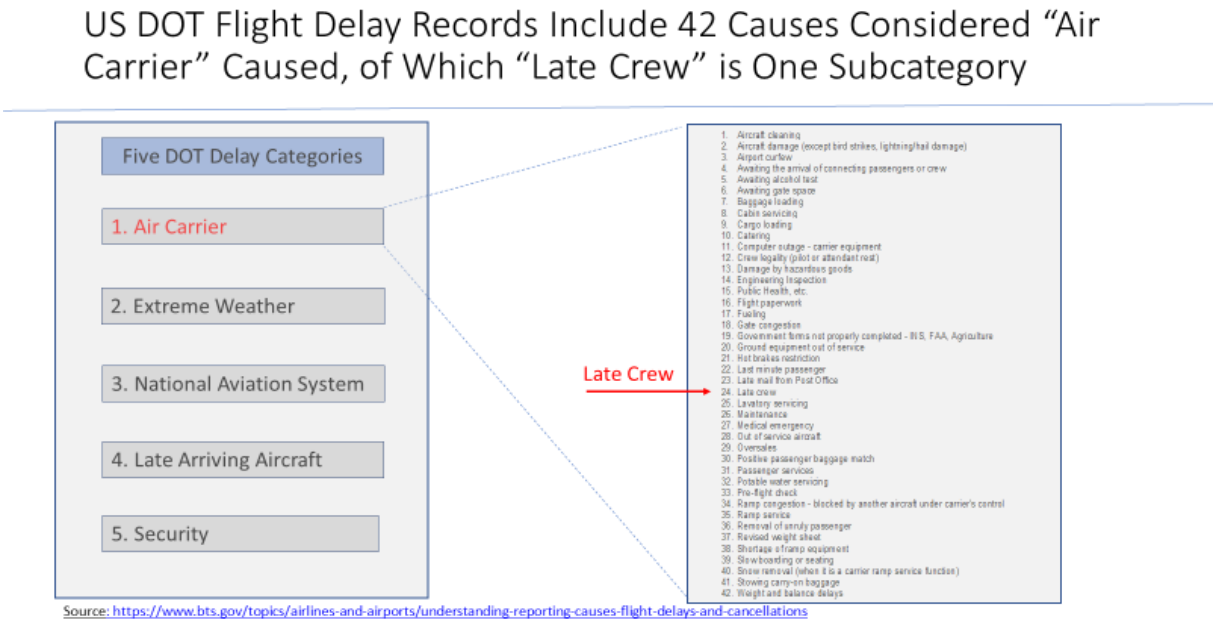


A. Air Carrier Related Delays at Boston Have Decreased Since ESTL

66. The flight delays that Dr. Lee contends will increase and cause havoc if A4A carriers comply with ESTL are related primarily to delays caused by cabin and cockpit crew shortages. Such crew-related delays are captured as one cause amongst dozens of factors which account for delays in on-time performance statistics collected by the U.S. DOT. The DOT identifies five principal categories of flight delay, including those related to weather, air traffic control, security, late arriving aircraft, and one classification related to internal airline causes of delay categorized as "Air Carrier".[108]

[108] US DOT On-Time performance causes of delay categories.

Graph 15



The U.S. DOT defines these five categories of cause for flight delays, as follows:[109] [110]

1. Air Carrier: The cause of the cancellation or delay was due to circumstances within the airline's control (e.g. maintenance or crew problems, aircraft cleaning, baggage loading, fueling, etc.).

2. Extreme Weather: Significant meteorological conditions (actual or forecasted) that, in the judgment of the carrier, delays or prevents the operation of a flight such as tornado, blizzard or hurricane.

3. National Aviation System (NAS): Delays and cancellations attributable to the national aviation system that refer to a broad set of conditions, such as non-extreme weather conditions, airport operations, heavy traffic volume, and air traffic control.

4. Late-arriving aircraft: A previous flight with same aircraft arrived late, causing the present flight to depart late.

5. Security: Delays or cancellations caused by evacuation of a terminal or concourse, re-boarding of aircraft because of security breach, inoperative screening equipment and/or long lines in excess of 29 minutes at screening areas.

[109] https://www.bts.gov/topics/airlines-and-airports/number-14-time-reporting
[110] https://www.bts.gov/topics/airlines-and-airports/understanding-reporting-causes-flight-delays-and-cancellations

67. Each of these five principal categories contain several subcategories, which are focused on specific incidences of delay. For example, "Air Carrier" caused delays include 42 individual subcategories of delay determined by the U.S. DOT, of which "Late Crew" is one. These 42 subcategories of "Air Carrier" caused delays shown above in Graph 15.[111]

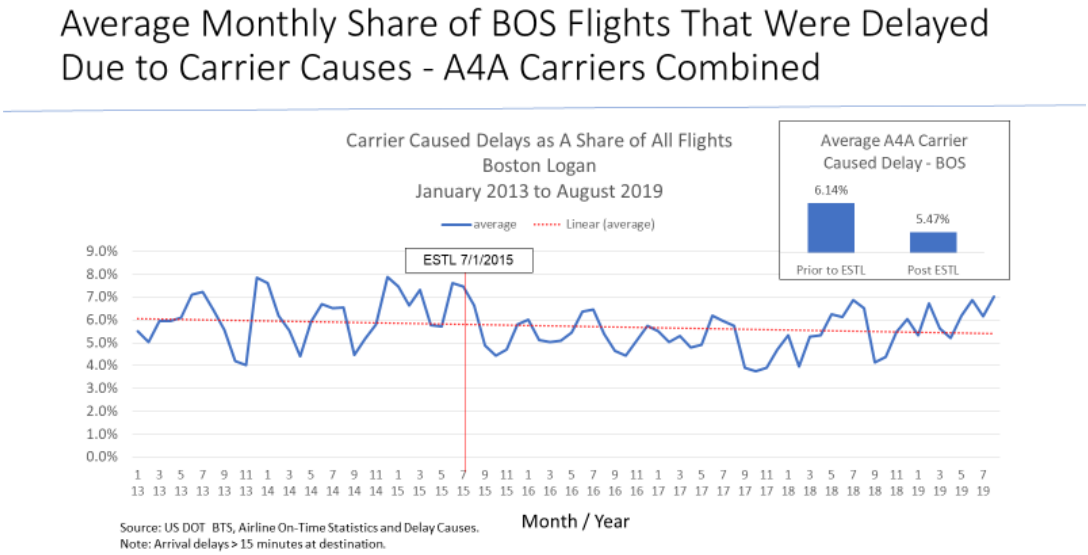
68. This list contains a wide range of DOT determined issues relating to delays that are categorized as Air Carrier caused. None of these 42 subcategories of delay considered Air Carrier caused are collected individually by the DOT, but rather the individual incidence volume of each cause of these 42 subcategories of delay contributes to the overall level of Air Carrier caused flight delays reported to the DOT. One of these subcategories of delay causes is called "late crew", which appears to be a broader category than related exclusively to crew sick leave related delays. Late crew could indicate delays caused by crewmembers that are late for any number of reasons, like commuting, connections, sick leave or road traffic.

69. Nonetheless, the delays Dr. Lee contends will increase with ESTL compliance would logically be contained within the "Air Carrier" category. Further, If Dr. Lee were correct about the impact of ESTL on delays, it would appear that Air Carrier caused delays at Boston would have increased after ESTL became effective. But the opposite is true. There was a drop in A4A carrier of Air Carrier caused delays at Boston after ESTL became effective.

[111] *Ibid*

70. An analysis of air carrier caused delays in Boston of A4A airlines over the past several years indicates a relatively flat, and slightly shrinking share of delays that were air carrier caused. Graph 16, below, highlights this trend.

Graph 16



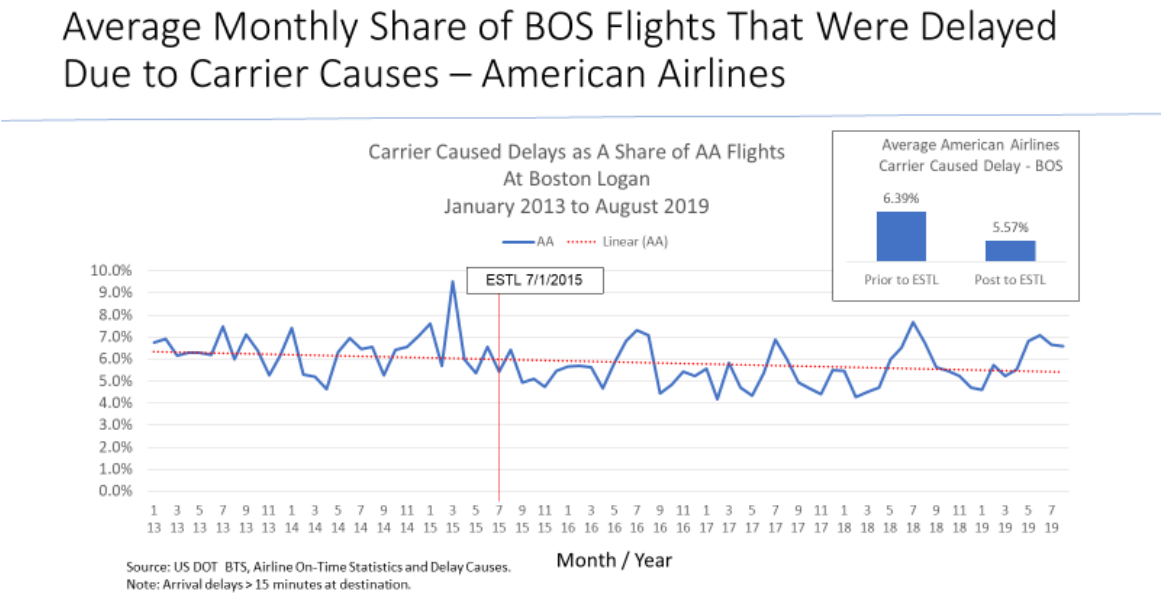
71. As shown in this timeseries, the share of A4A carrier flights in Boston that were impacted by air carrier related delays, from January 2013 to August 2019 (latest available), appear to be unrelated to ESTL introduction in July 2015. The average share of flights delayed due to carrier causes at Boston Logan were lower after ESTL was implemented (5.47%) than prior to implementation (6.14%).[112]

72. Individual A4A air carriers operating at Boston, such as American Airlines, experienced a similar decline in the share of air carrier caused delays after ESTL became

[112] US DOT On-Time performance data from 1/2013 to 6/2015 prior to ESTL, and 7/2015 to 8/2019 post ESTL.

effective. As shown on Graph 17, below, American Airlines share of flights delayed at Boston due to air carrier causes dropped from 6.39% prior to ESTL to 5.57% after ESTL implementation

Graph 17

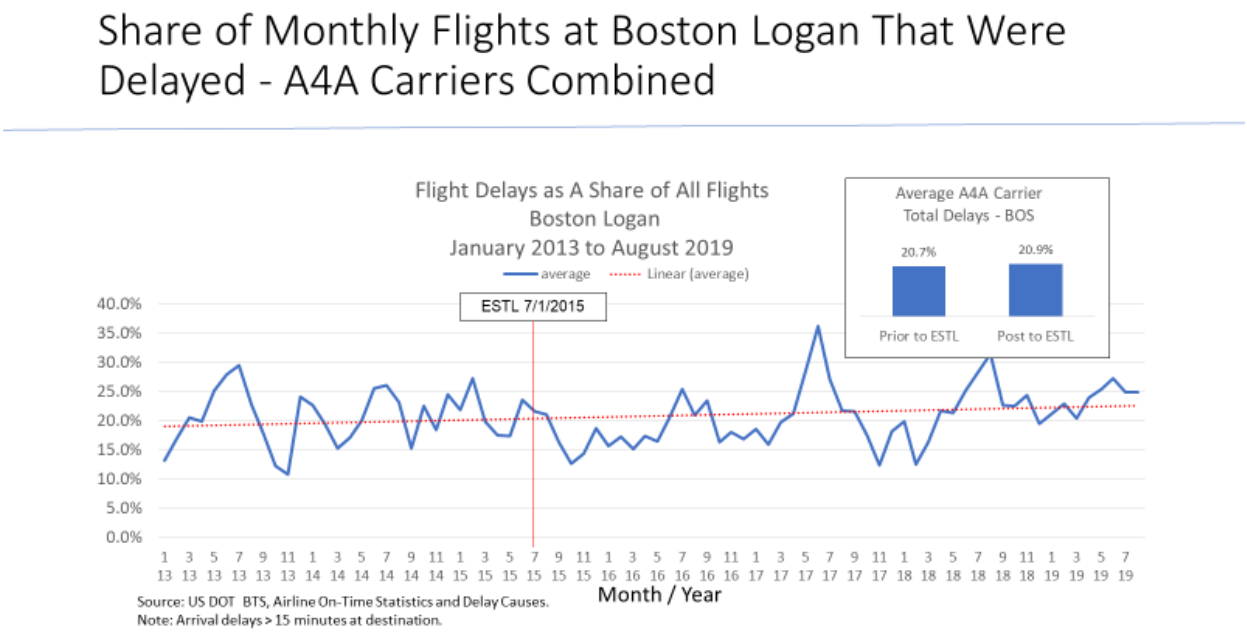


B. Flight Delays for All Causes at Boston Have Slightly Increased Since ESTL

73. This drop in the share of A4A and American Airlines delays at Boston related to Air Carrier was happening during a period in which delays from all causes was increasing. As shown in Graph 18, below, since 2013 the average share of A4A carrier's combined flights at Boston experiencing greater than 15-minute, from all causes, ranged from a monthly low of 10.9% in November 2013, to a high of 36.2% in June of 2017. Without considering this monthly variability, the average share of A4A carrier flights with delays from *all* causes at Boston increased slightly after ESTL was effective from 20.7% prior to July 2015 to 20.9% after July 2015. The increase in delayed flight share at Boston from all causes was occurring over the

same time frame that the share of A4A carrier delays at Boston due to Air Carrier causes were decreasing.[113]

Graph 18



74. If Dr. Lee were correct in his prognosis, carrier caused delays resulting from sick leave increases would have increased after ESTL. Clearly this did not happen, nor did any of the operational calamities predicted by Dr. Lee. The decrease in air carrier caused delays in Boston after ESTL was implemented, combined with the rapid traffic growth and decreased fare levels should serve as a persuasive and robust rebuttal of Dr. Lee's theoretical claims.

[113] US DOT Carrier On-Time Performance statistics which state; "*If you chose Origin as a category, you get percent of flights that depart from those airports and arrive on time.*" (https://www.transtats.bts.gov/Fields.asp)

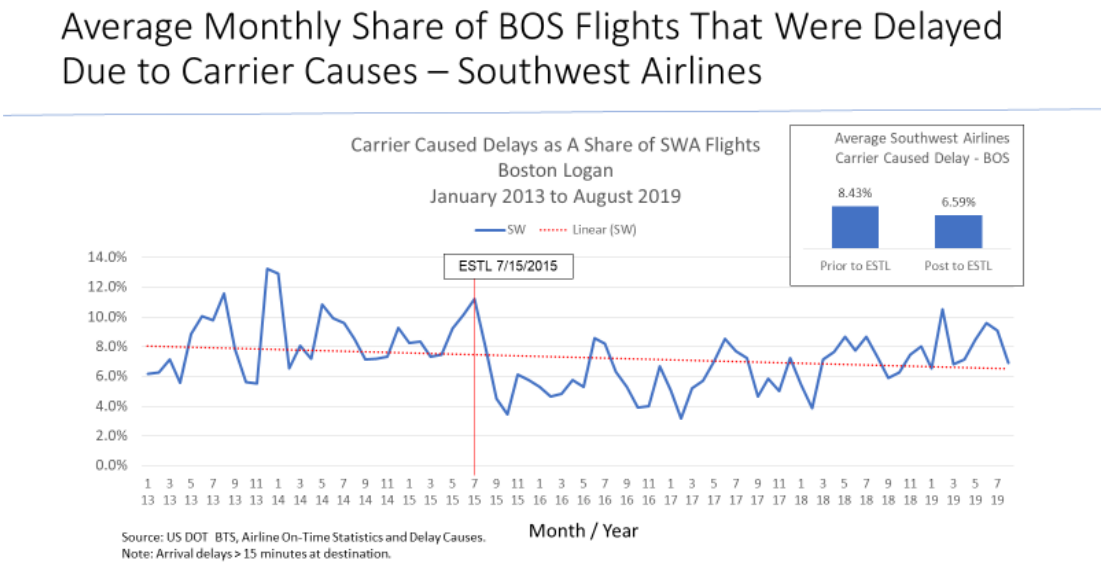
IX. Southwest Airlines Flight Delay Data and Internal Employee Sick Leave Data at Boston Point to the Nebulous Impact of ESTL on Operational Delays

75. A4A Declarant David Irving, a Southwest Airlines Station Manager at Boston claims that sick leave use among Southwest's ground employees has increased due to ESTL which have caused delays, passenger confusion and missed flights over the past three years. [114] Despite the lack of any supporting evidence, Mr. Irving's statements are used by Dr. Lee to advance the claim that compliance with ESTL is harming on-time performance.[115]

76. Graph 19 below indicates that the share of Southwest flights at Boston that are delayed more than 15 minutes due to air carrier causes have decreased substantially after ESTL became effective. Southwest's Air Carrier caused delays, of which sick leave related personnel shortages are included, declined 28%, from an 8.43% share prior to ESTL implementation to a 6.59% share after ESTL. The period immediately following ESTL effective date showed a pronounced drop in the share of Southwest's Boston flights that were delayed due to air carrier causes.

[114] Paragraph 4, Declaration of David Irving In Support of Plaintiff Air Transportation Association of America, Inc.'s Motion for Summary Judgement. No: 1:18-CV-10651-ADB (Delta v. NYC).
[115] Lee at paragraph 81.

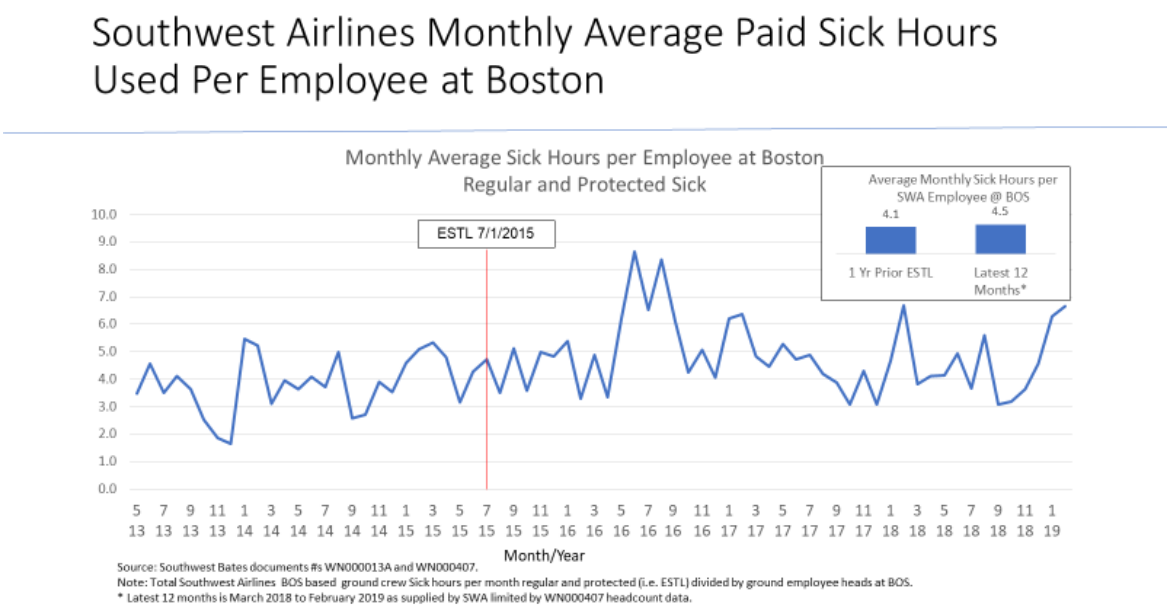
Graph 19



77. Clearly the sick leave increases among ground crew that Mr. Irving's claims occurred after ESTL have not translated into increases in air carrier caused delays in Southwest's operations at Boston. A display of Southwest ground employee sick leave data at Boston provided by Southwest Airlines shown in Graph 20, which displays the average monthly sick hours used per Boston based Southwest ground employee, including both regular and protected (ESTL) sick hours.[116] As can be seen, the rate of sick leave hours used per month by Southwest employees at Boston increased initially after ESTL, but has only increased on average by less than one-half hour from levels in the year preceding ESTL levels (4.1 hours per employee) to the average during latest 12 months available (4.5 hours per employee). Importantly, as shown in Exhibit 19 above, this small change in of sick leave use by Southwest employees at Boston had little impact on SWA carrier caused flight delays.

[116] Updated and corrected SWA sick leave data, November 19, 2019, file WN00013A.

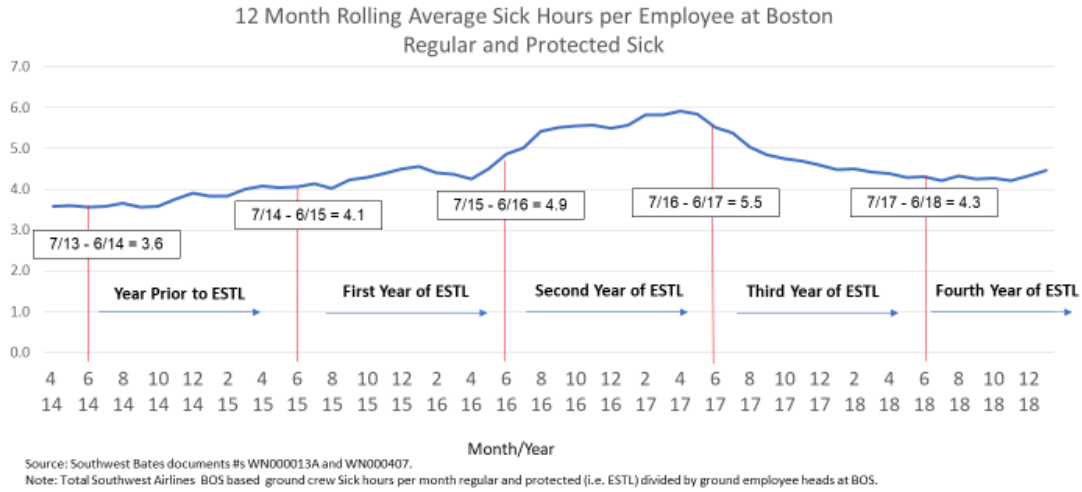
Graph 20



78. This same data viewed as a smoothed trailing twelve-month average the trend in Southwest's Boston based ground crew sick leave use becomes clearer. As shown in Graph 21, sick leave use per SWA Boston based ground crew employee did initially increase immediately following ESTL, from a twelve-month average of 4.1 hours per employee in the year prior to ESTL implementation, to a twelve-month average of over 5.5 hours per employee in the second year following ESTL. Since then sick leave hours per employee have dropped dramatically to near the same level of use per employee in the pre ESTL period.

Graph 21

Southwest Airlines 12 Month Rolling Average Paid Sick Hours Per Employee at Boston

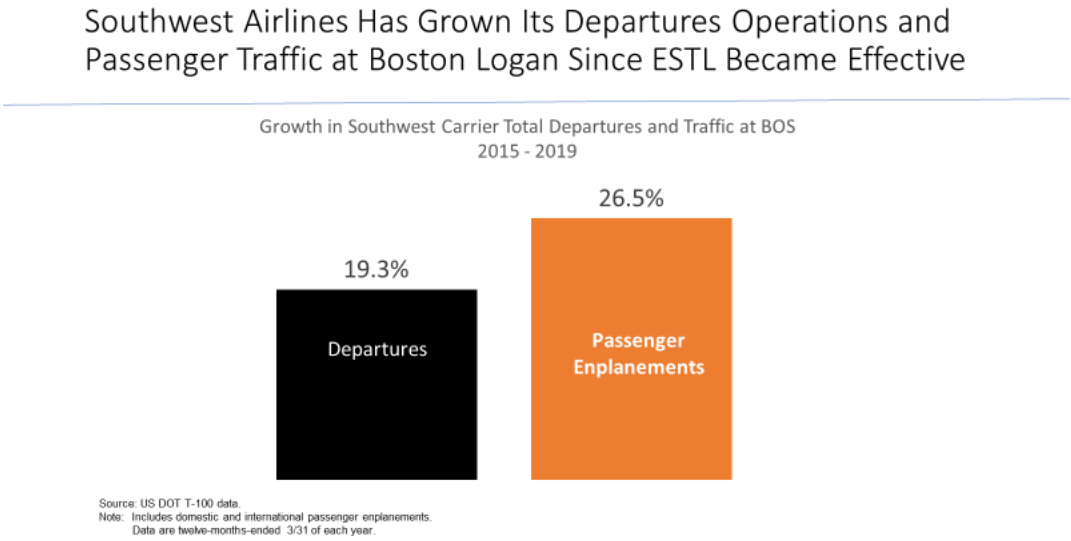


Source: Southwest Bates documents #s WN000013A and WN000407.
Note: Total Southwest Airlines BOS based ground crew Sick hours per month regular and protected (i.e. ESTL) divided by ground employee heads at BOS.

79. The purported increase in flight delays related to increased sick leave use claimed by Mr. Irving is neither borne out by U.S DOT delay data for Southwest operations at Boston, nor by the actual sick leave used by the carrier's ground employees supplied by Southwest to the Defendant. In fact, Southwest has grown its operations at Boston faster than any other A4A carrier over the past few years, as both departures and passenger enplanements are up by double-digits since 2015 when ESTL became effective. As shown in Graph 22 below, Southwest's departures at Boston grew by 19.3% between 2015 and 2019, while passenger traffic has grown by 26.5% during the same time period.[117]

[117] US DOT Form 41 Data, TME 3 31 of each year, latest available.

Graph 22



X. The Practical Significance of Purported Increased Sick Leave Use on A4A Carrier Operations

80. Despite the appearance of veracity and diligence lent to his evaluation of airline employee sick leave use and crew related delays provided Dr. Lee through his use of statistical analysis, the results highlight an extremely marginal practical impact on airline operations. For example, his analysis of the foreboding "chilling example" of Virgin America Flight Attendant's purported response to NYC's ESTA sick leave laws provided a maximum monthly increase in crew related delays of 1.2 percentage points.[118] In addition, his analysis of the impact of high Flight Attendant sick leave use at A4A carriers, shown in his Exhibit 18, ranges in similarly marginal increases in existing flight delays ranging from a low of 0.9 to a high of 2.5 percentage points. Here again, an extremely modest, and hardly the kinds of calamitous downstream impacts and

[118] Lee at paragraph 72.

costly disruptions claimed by Dr. Lee. [119] Dr. Lee touts the "statistical significance" of these results, without examining the extremely limited practical impact of his findings.

81. At paragraph 67 of his Report Dr Lee says the following; "*For United, Alaska, Southwest, American, Virgin America, and JetBlue, the regressions show that the top 25% of days in terms of flight attendant sick rates were associated with delay rates that were between 0.9 and 2.5 percentage points higher, after controlling for other factors. Moreover, the higher delay rates for each of these carriers are statistically significant, either at the 99% or 95% level of confidence*"

82. One should not infer from Dr. Lee's analysis that a relationship between variables that is statistically significant relates to the "practical significance" of the impact or results.[120] Tests of statistical significance rarely tell us about the importance of a research result.[121] As shown in Chart 1, the average share of departing flights operated by A4A passenger carriers at BOS which experienced delays of 15 minutes or more was 21.6%. When applied to the more than 110,000 flight departures operated by A4A carriers in 2018 at BOS, the 21.6% delay share represents an average of 64 delayed flights a day for all A4A passenger carriers combined.[122] The purported increase at BOS which Dr. Lee attributes to days with peak Flight Attendants unscheduled absences would increase delays by a total of approximately 3 to 6 flights a day in total for all A4A passenger carriers combined. That is an increase in delays affecting less than one flight per A4A carrier per day. The practical impact of the purported increase in flight delays claimed by Dr. Lee in the range of 1 to 2 percentage points related to Flight Attendant sick leave

[119] Lee at paragraph 67

[120] Practical significance refers to the magnitude of the difference. This is also known as the effect size. Results are practically significant when the difference is large enough to be meaningful in real life. https://newonlinecourses.science.psu.edu/stat200/lesson/6/6.4

[121] University of Guelph, "Statistical vs Practical Significance", https://atrium.lib.uoguelph.ca/xmlui/bitstream/handle/10214/1869/A_Statistical_versus_Practical_Significance.pdf?sequence=7

[122] US DOT T-100 data TME 3/31/19.

use should be considered not only in relation to the existing base of delays, but also should be viewed in context of the variations in monthly delay shares experienced by A4A passenger carriers at BOS, as shown elsewhere.[123]

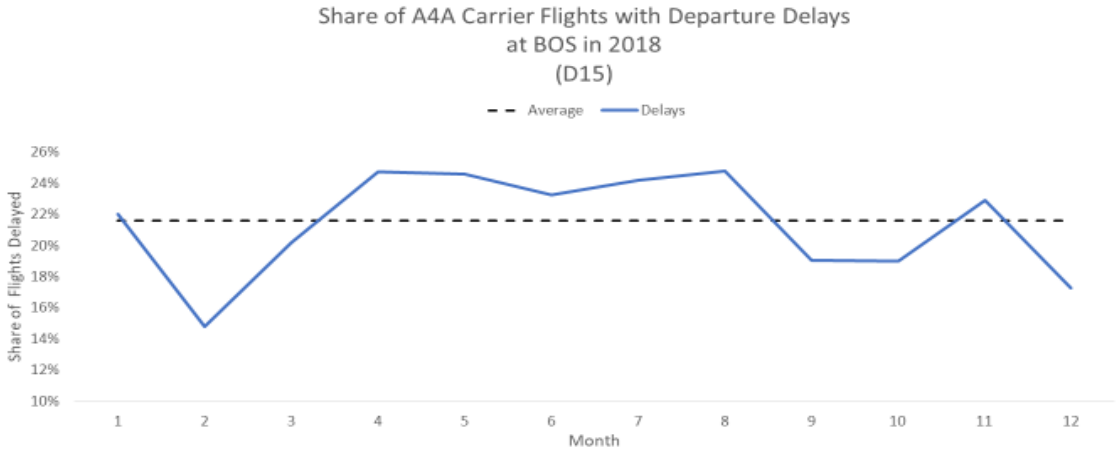
83. Thus, despite statistical significance claims made by Dr. Lee amongst the variables in his regression analyses, the practical impact of increased delays is marginal at best, especially considering existing delay levels, as well as the large variations in delays that A4A carriers experience routinely on a daily basis. The unsubstantiated cataclysmic downstream impacts of flight delays which Dr. Lee claims will result from A4A carrier compliance with ESTL appear unlikely given the purported marginal percentage point increase in delay share amongst the existing level and variation of delays at BOS.[124]

84. A4A carriers are able to contend with far greater swings in its daily departure delays at BOS than those contemplated by Dr. Lee's modeling. As shown in Graph 23, below, the share of A4A carrier flights that were delayed (blue line) ranged from a low of 14.8% during February, to a high of 24.8% in August, averaging 21.6% for the entire year 2018. The standard deviation above and below average monthly delay share was 3.2 percentage points, which is far more variation than the increase of 1 or 2 percentage points in delays predicted from Dr. Lee's analysis.[125] Thus, the potential for sick leave use by flight attendants to have a meaningful impact on delays and downline operations would seem remote.

[123] Lee at pages 12 and 13.
[124] US DOT Airline On-time Performance Data
[125] Lee at page 15.

Graph 23

A4A Carriers' Delay Shares at Boston Varied by an Average of 14 Percentage Points in 2018, Far Larger Than 1 to 2 Percentage Point Increase Resulting from Dr. Lee's Analysis*



Source: US DOT On-Time Performance Data Departure Delays in 2018 for AA, AS, JB, UA and SWA combined.
*Note: Dr. Lee Expert Report, at paragraph 66.

A. The Length of Flight Delays and Their Practical Impact

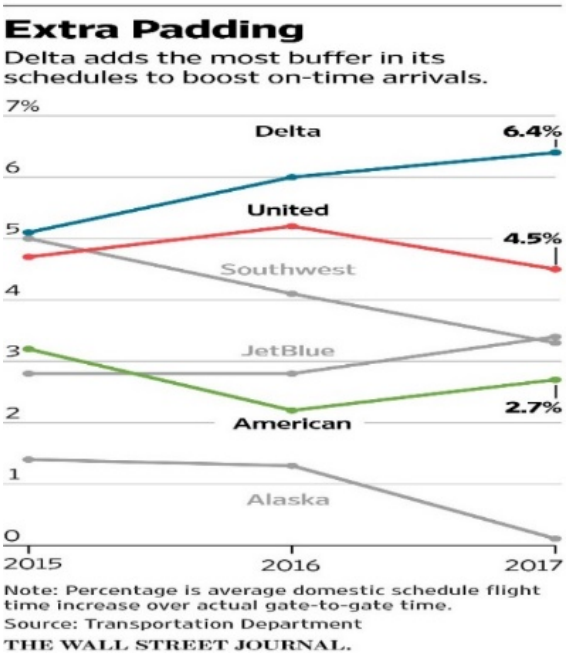
85. While Dr. Lee's report focuses on the potential downline impact on the increase in the *incidence* of flight delays related to sick leave use by airline employees, there is no attempt to measure the length or nature of such delays. The length of delay has a significant relationship with potential downline impacts. A 15- or 20-minute departure delay has a smaller potential of disrupting airline operations than longer delays.

86. A4A carrier operations at BOS are routinely some of the most delayed in the country.[126] Weather, congestion, air traffic control, and other factors contribute to the level of

[126] *Op. cit*. Digg.

delay at BOS. [127] Airlines that operate at BOS, including A4A carriers, factor this into their flight schedules by adding additional flight time to incorporate an expected level of flight delays. By doing so airlines can effectively depart late and still arrive "on-time" at the destination. This practice prevents disruption by ensuring that arriving passengers can make their flight connections at the arriving airport. [128] A study recently by the Wall Street Journal found that all large U.S. airlines have padded their schedules with additional flight time to accommodate operational delays.[129] Graph 24 below, which is excerpted from a Wall Street Journal airline schedule study, and shows all the carriers, including five A4A carriers in this case, have padded their schedules by adding more time to their flights.

Graph 24



[127] US DOT Airline on-time performance and delay statistics.
[128] Forbes, Jan 9, 2019, *It's Hard to Believe Delta Brings in 86% of its Flights On-Time, or Any Airline, Here's Why*, by D. Reed.
[129] Wall Street Journal, June 28, 2017," *Which Airlines Pad Their Schedules the Most*", by S. McCartney..

XI. Dr. Lee Exaggerates the Relative Impact of Airline Employee Sick Leave Use on A4A Carrier's Routes and Services

87. Dr. Lee fully understands the economic rationale behind the vast majority of A4A airlines routing decisions, which connect passengers in competing services over a network of hubs and international gateways. A4A carrier operations are designed to leverage flight frequency and services over hubs, and in the case of Southwest, focus cities, because of the underlying economic benefits offered by these operational configurations.[130] In his Exhibit 20, Dr. Lee highlights this fact by showing that the vast majority of carriers connect their non-stop service in cities which serve as crew bases. Dr. Lee fails to mention the obvious logical connection that A4A carriers tend to position the vast majority of crew bases in cities where carriers concentrate flight connections at their hubs and focus cities, and not because certain locations somehow make good crew bases.[131] Thus, Dr. Lee misleads when he claims; *"Because A4A passenger carriers (with the exception of Southwest) have a demonstrated proclivity to minimize or avoid non-stop service on routes where neither endpoint is a crew base, any exogenous factor that discourages airlines from maintaining or establishing a crew base in a city or state directly impacts the routes and services that airlines are likely to offer from that city or state."*[132] By implication of his representation of Exhibit 20, Dr. Lee appears

[130] Air transportation in the US has since deregulation in 1979 evolved into a well-established network of hubs for full service A4A carriers like American and United, as well as focus cities for point-to-point carriers like Southwest Airlines. See, for example, "Airline Networks: A Comparison of Hub-and-Spoke and Point-to-Point Systems", G. Cook and J. Goodwin, Journal of Aviation/ Aerospace Education & Research, Vol. 17, Number 2, Embry Riddle Aeronautical University.

[131] Dr. Lee's note on Exhibit 20 indicates that crew bases for A4A carriers are positioned at hubs and focus cities (highlighted in red), international gateways and other large cities. Ex. 20.Note:*" American (BOG, BOS, CLT, DCA, DFW, EZE, JFK/LGA, LAX, LIM, MIA, ORD, PHL, PHX, RDU, SCL, SFO), Delta (ATL, BOS, CVG, DTW, HNL, JFK/LGA, LAX, MCO, MSP, SEA, SFO, SLC), United (BOS, CLE, DCA, DEN, EWR, FRA, GUM, HKG, HNL, IAD, IAH, LAS, LAX, LHR, NRT, ORD, SFO), JetBlue (BOS, FLL, JFK/LGA, LAX/LGB, MCO), Southwest (ATL, BWI, DAL, DEN, HOU, LAS, MCO, MDW, OAK, PHX), Alaska (ANC, LAX, PDX, SAN, SEA, SFO)".*

[132] Lee at paragraph 75.

to suggest that crew bases are the primary determining factor in non-stop service development, and that airline service patterns are not almost exclusively related to the underlying economics of non-stop service in carrier networks over connecting hubs and focus cities. Network economics not crew basing choices concentrate A4A carrier service at certain locations, which as a result of high flight frequency, also happen to be logical places for A4A carriers to position crew bases. The economics, level of competition, and demand on any given route are the driving forces which determine airline service levels, not crew basing decisions as suggested by Dr. Lee.

88. Dr. Lee's conclusion that A4A carriers have demonstrated a proclivity to direct non-stop service to cities which serve as crew bases, ignores the rather obvious fact that hubs and gateways determine where most crew bases are situated, and not the other way around. This is an attempt to elevate the risk to Boston air service from A4A carrier compliance with ESTL which doesn't exist. Regarding his Exhibit 20, Dr. Lee continues; *"Thus, because ESTA and other similar paid sick leave laws—including the Massachusetts Earned Sick Time Law—undermine a carrier's ability to offer reliable service to its customers, they will reduce carriers' incentives to establish crew bases at airports impacted by such laws, thereby impacting the routes and services that carriers serve from the affected airports, cities or states (and in turn, the fares paid by passengers)".*[133] Dr. Lee's claims are not supported by the facts.

[133] Lee at paragraph 75.

89. As shown below, in Table 2, 92% of A4A mainline carrier service at Boston Logan is provided via nonstop flights to each carrier's respective hubs and focus cities, which also serve as crew bases.[134] JetBlue's hub operations at BOS is not included in the Table as service from its hub means the majority of the carrier's service from is to non-hub "spoke" cities.[135] Boston's air service, like other cities, is based on the demand for air transportation and not crew basing decisions.

Table 2

Share of Carrier Nonstop Service to Hubs from BOS	
American	100%
United	100%
Alaska	88%
Southwest	65%
Average	92%

Source: US DOT T-100 2018

90. With nearly 5 million people in the metropolitan region and a growing and diverse economic base, Boston has become one of the strongest airline markets in the country, based on the underlying demand and the economics present in the city and region.[136] Boston is a leader in medicine, technology and higher education, has a growing and vibrant economy where recent annual average per capita income grew by 5.0%.[137] Massachusetts was recently ranked the sixth

[134] US DOT T-100 (2018)

[135] JetBlue's operation of and effective hub at BOS creates service patterns which focus primarily on non-hub cities, as a result JetBlue's flight service from BOS to other JetBlue hubs/focus cities is just 16% of the carrier's flights at BOS in 2018.

[136] US Census Bureau, "Top 383 US MSA's Ranked", July 2018.

[137] "Boston's Economy 2018", Boston Planning & Development Agency, Research Division, May 2018.

strongest economy in the nation and Boston Logan as one of the fastest growing airports in the country. [138] [139]

91. The vitality of air service at Boston Logan has not and will not be affected by A4A carrier compliance with ESTL. As an academic, Dr. Lee's C.V. reflects his numerous writings, which generally reflect his various considerations of the demand for and supply of air transportation services, as well as pricing, costs and other factors related to air carrier operations. In none of these papers, articles or books, that I am aware, does Dr. Lee consider crew basing or employee sick leave laws as having a bearing on air carrier service. This void in his research reflects the fact that sick leave laws are not significant factors in determining air service, routes, prices or costs.

XII. Airline Discipline Policy can Force Sick Employees to Work when Sick, Compromising their Abilities, Undermining Safe Operations, and Exposing Passengers and Fellow Employees to Illness and Generally Undermining Public Welfare

92. In their initial Complaint A4A stated the following, "*A4A members also maintain attendance and reliability policies for flight and ground crews, many of which also are incorporated into CBAs. The purpose of these policies is to allow airlines to monitor whether an employee works when scheduled, to ensure on-time operations".*[140] As stated airlines adhere to employee disciplinary policies that are primarily intended to "*ensure on-time operations*" and the "*need to provided consistent on-time service*".[141] Dr. Lee also cites the principle effect of disciplinary action is to ensure on-time operations, "*One aspect of the Law that is particularly pernicious to airlines and*

[138] The Ohio Alliance for Innovation of Population, *An Analysis of Economic Well Being for the US and Ohio*, Jan. 24, 2019.
[139] US DOT Form 41 Data
[140] Paragraph 22, Complaint for Declaratory and Injunctive Relief, A4A vs Maura Healey, in her official capacity as Attorney General, US District Court of Massachusetts, April 4, 2018.
141 *Ibid.*

would substantially impair carriers' ability to offer reliable service to passengers is the provision that makes it unlawful for any employer to use "the taking of earned sick time… as a negative factor in any employment action such as evaluation, promotion, disciplinary action, or termination, or otherwise subjecting an employee to discipline for the use of earned sick time…"[142]

93. While it is important for airlines to strive to operate their businesses in an on-time manner, it would seem the greater goal is to ensure the highest level of safety is achieved in their operations. Ensuring that safety critical employees are not incentivized to work while sick is key to ensuring safe operations.

94. Due to the nature of illness, airline employees who become ill are not always able to provide lengthy advance notice prescribed by the employer's sick leave policies. The impact of discipline, or the threat of it, for taking accrued paid sick can incentivize employers to fly while sick. Massachusetts' ESTL Law expressly prohibits employers from taking or threatening retaliation against employees for exercising their right under the Law.[143] Forcing safety critical employees such as Pilots, Flight Attendants and Technicians to work while sick is not in the airlines nor the public's best interest.

95. For example, Flight Attendants work primarily in a confined and densely populated environment at altitude aboard pressurized aircraft. The nature of their job places Flight Attendants in continuous proximity to thousands of passengers each day. Recirculated cabin air and extensive personal contact with passengers exposes Flight Attendants to a

[142] Lee at page 16.
[143] Massachusetts Earned Sick Leave Law *See* 940 CMR 33.08(1).

plethora of viruses, bacteria and other contagions not typically faced by employees in other jobs. Numerous peer reviewed studies have identified the heightened exposure of airline Flight Attendants to illness and disease compared to the general population.[144]

96. Due to the circumstances of their work environment, not only do Flight Attendants have a much higher exposure of contracting an illness than the general public, they also have a much greater chance of transmitting illnesses to airline passengers aboard their flights.[145] [146] In addition, an impaired or ill Flight Attendant who is incentivized to work while sick may be unable to conduct emergency procedures and operate safety equipment, thereby endangering passengers who depend upon them, undermining the very reason Flight Attendants are mandated by the FAA to be aboard each flight.[147] And it appears to indeed be happening, as American Airline's President of the Association of Professional Flight Attendants, Lori Bassani, recently stated: *"People are working sick instead of getting that dreaded 'point' where they could be terminated".*[148] Pilots and Technicians face similar, or even greater, safety burdens that are obviously compromised when they become ill or fatigued and skills may be impaired.[149]

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[144] *See* Harvard Flight Attendant Health Study 2014 and PNAS Flight Cabin Illness Transmission Study Feb 2018, for example.

[145] McNeely, et al., The self-reported health of U.S. flight attendants compared to the general population, Environmental Health Journal, 2014, Department of Environmental Health, Harvard School of Public Health, https://ehjournal.biomedcentral.com/articles/10.1186/1476-069X-13-13

[146] Hertzberg, et al., Behaviors, movements and transmissions of droplet-mediated respiratory diseases during transcontinental airline flights, 2/13/2018, Proceedings of the National Academy of Sciences of the United States of America, www.pnas.org/cgi/doi/10.1073/pnas.1711611115

[147] See 14 CFR § 91.533.

[148] APFA President quoted in air.today, June 13, 2019.. https://www.fhsolutionsgroup.com/blog/airtoday/american-airlines-flight-attendants-say-their-airlines-policy-cruel-ridiculous-and-inhumane

[149] See Declaration of Daniel Wolf, November 12, 2019 and Declaration of DeborahAnn Cavalcante, December 16, 2019.

97. Importantly, to protect airline operators against potential abuse of sick leave use by employees ESTL allows for employer disciplinary action in certain situations where sick leave use appears inconsistent with allowable purposes of ESTL. As Cynthia Mark, Chief of the Fair Labor Division of the Massachusetts Attorney General's Office, stated in her Declaration, "*employer may discipline an employee who exhibits a clear pattern of using earned sick time on days immediately preceding or immediately following a weekend, vacation, or holiday, unless the employee provides verification of an authorized use of earned sick time*".[150]

XIII. Virgin America Does Not Provide an Accurate Example for A4A Carriers of the Likely Impact of Complying with Massachusetts ESTL

98. Dr. Lee regards Virgin America's experience in New York City after the carrier complied with an employee paid sick leave law as the example of what would likely occur to other airline's operations if they were to comply with Massachusetts' ESTA regulations. At paragraph 70 Dr. Lee claims; "*While airlines have not yet universally changed their policies in response to the Massachusetts Earned Sick Time Law, Virgin America's* experience *in New York after complying with ESTA presents a chilling example of the consequences that such laws can have on airlines and the travelling public*". Dr. Lee's conclusions as to the *"consequences"* of Virgin America's compliance with New York City's ESTA sick leave law on Virgin America's operations are overstated and not supported by his analysis of the data, and most importantly, ignore the broader operational context of Virgin America during the period of time he considers in his analysis.

[150] Declaration of Cynthia Mark, Esquire, December 17, 2019, paragraph 28.

99. Dr. Lee asserts that the operational experience of Virgin America after it complied with NYC's ESTA when translated to other airlines, would cause *a "ripple effect across the country, adversely affecting passengers and U.S. commerce across the country (and beyond)*. [151] His assessment of the downstream "ripple" effect is not supported by any evidence in Dr. Lee's report and ignores the operational recovery capability provided in his own example of Virgin America, as well as in the contracts of employees of A4A passenger carriers. [152] Virgin's far-flung transcontinental-focused route system was unique and was one of many obstacles in Virgin's ability to prevent or recover from delays in their operation at NYC. For this, and several other reasons that are explored below, the experience of Virgin America in compliance with ESTA is not a useful example from which to assess the purported impacts of ESTL compliance on A4A carriers in Boston.

A. Increases in Virgin Flight Attendant Sick Days above the 40 Hour Threshold Cannot be Factually Attributed to the Impact of ESTA

100. Under ESTA, employers may use their disciplinary policy on all sick leave hours above 40 per year. As Dr. Lee describes, "*Virgin voluntarily chose to reset its pre-existing points program to start after 40 hours of sick leave use, in effect putting off the first verbal warning until after 40 hours plus nine additional sick days had been used".*[153] [154] Prior to compliance data presented by Dr. Lee strongly suggest Virgin Flight Attendant sick leave use was already at or above 40 hours required by ESTA. Therefore the (two-year delayed) impact of compliance

[151] Lee at paragraph 76.
[152] Virgin America experienced only marginal cabin crew related delays (1.2% points) despite dramatically increased sick leave use by F/As in 2017 (See Dr. Lee at paragraphs 72 and 93). Examples of A4A carrier crew staffing language in Appendix C.
[153] Virgin America Inflight Work Rules, Chapter 2, Section B.5.a, Points system applied ½ point per sick day used, 5 points needed for first verbal warning, therefore 9 days sick use = 4.5 points without warning.
[154] Lee at paragraph 6.

ESTA cannot be attributable to Virgin's New York based Flight Attendant's increased sick leave use above 40 hours. As is evident from Dr. Lee's analysis, nearly all of the increase in Flight Attendant sick leave use was above the 40--hour annual paid sick leave minimum mandated by ESTA.

101. For example, Dr. Lee claims that Virgin Flight Attendants based in NYC reacted to the carriers compliance by doubling their annual sick days, from 8.7 days in the year prior to compliance, to 17.3 sick days in the period beginning two-full years after compliance, an increase of nearly 9 days.[155] The average sick leave use before compliance would likely already meet the minimum of 40 hours protected by the law. It also ignores the massive strategic changes going on at Virgin which were affecting cabin crew delays across Virgin's system at the time.[156]

102. The amount of time Virgin America's Flight Attendants were paid and credited for sick leave use is stated in Virgin's Inflight Work Rules, "*A lineholder with approved sick days will be credited for the scheduled value of all missed duty periods or flight segments*".[157] As indicted, paid sick days used by Virgin Flight Attendants were paid and credited at the number of hours of the flight segments or duty period they were scheduled to work, but missed. As Dr. Lee's Exhibit 19 shows, in 2014, an average of 8.5 days of sick leave were used by Virgin's JFK based Flight Attendants.

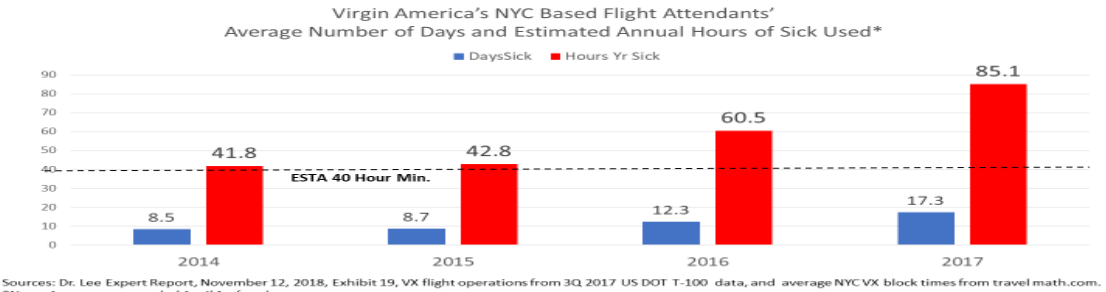
103. As shown in Graph 25 below, one can use the existing sick leave utilized by Virgin's NYC based Flight Attendants prior to the carrier's compliance with ESTA of 8.5 days in 2014 to

[155] *Ibid*.
[156] Lee, Appendix B., Virgin America Cancellation and Delay data.
[157] See Chapter 10, Section G.2.b of Virgin America Inflight Work Rules Oct. 1 2013.

estimate the annual paid sick hours of Virgin's NYC based Flight Attendants. If the average Virgin Flight Attendant had 4.7 hours per day of credited pay per sick day based on missed duty periods or flight segments, they would already achieve 40 hours required by the ESTA Law in 2014 (8.5 sick days * 4.7 hours credit per day = 40 hours). However, Virgin's routes from NYC were some of the longest in Virgin's system, with an average distance of 2,731 miles and a weighted average block time of 4.92 hours per leg in 3Q 2017.[158] Based on this average block of 4.92 hours and the average of 8.5 days of sick leave used in 2014, the average NYC based Virgin Flight Attendant would generate over 40 hours of paid annual sick leave per Virgin Flight Attendant, *before* ESTA compliance (8.5 sick days * 4.92 credit hours per day = 41.8 hours annual sick leave). It would appear that all of the increases in Virgin Flight Attendant sick leave use asserted by Dr. Lee in 2016 and 2017 as caused by ESTA compliance are actually increases in sick leave use over and above ESTA's 40 hour annual minimum paid sick leave, and therefore cannot be related to the carrier's compliance with ESTA.

Graph 25

Virgin America's Flight Attendant Sick Leave Use in NYC was Likely Above ESTA Minimum of 40 Hours Before Compliance



Sources: Dr. Lee Expert Report, November 12, 2018, Exhibit 19, VX flight operations from 3Q 2017 US DOT T-100 data, and average NYC VX block times from travel math.com.
*Note: Assumes year ended April 1 of each year.
Average hours per day sick time at the weighted average time 4.92 hrs. per flight segment based on routes flown from LGA and JFK and number of operations on each route 3Q 2017.

158 The weighted average4.92 hours per segment is based on the volume of Virgin America flight operations by segment from JFK and LGA in 3Q 2017 from US DOT T-100 data and the average block times on those segments from travel math.com.

104. Even assuming the lower 3.5 pay hours minimum line holder and reserve pay per duty period pay guarantee stated in the Virgin's Inflight Work Rules,[159] ESTA would only apply to a maximum of 11.4 days (3.5 *11.4 =40). As is discussed below, it appears that Virgin's voluntary decision to reset its verbal discipline threshold to begin at 40 hours plus 9 days, coupled with enormous strategic changes at Virgin during 2016-17, had more to do with increase in Flight Attendant leaves than compliance with ESTA.

B. Unlike Most A4A Carriers Virgin's Operations Lacked Interconnectivity and Operational Support As its Nearest Crew Bases Were 2,500 Away From New York

105. Virgin's route network was primarily focused on long-haul transcontinental operations, principally to/from LAX and SFO, where it had established crew bases. As shown in Graph 26, below, Virgin's operations in NYC were approximately 2,500 miles and more than five hours away from the carrier's other crew bases in California. This meant that Virgin could not effectively respond to ad hoc staffing shortages through the assignment of LAX or SFO based Flight Attendants to NYC.

[159] *Op. cit.*, Virgin, Chapter 10, F 4 (a) and 10. F 2 (e).

Graph 26

The Two Other Virgin America Flight Attendant Bases Were in SFO and LAX - 2,500 Miles Distant and Hours Away from NYC

Distance in Miles

JFK-SFO 2,586
JFK-LAX 2,475

Source: Great Circle Mapper

106. Virtually all other large carriers operate a much denser network of operations over several nearby hubs and crew bases. For example, American has over 11,000 of its non-BOS based Flight Attendants within an weighted average of 388 miles of BOS at five of its hubs that are Flight Attendant bases (Charlotte, Chicago, New York City, Philadelphia, and Washington, D.C).[160] [161] These five nearby Flight Attendant bases are all well served at BOS as American operates a total of over 50 directional non-stop flights a day in these markets, representing 70% of all American Airlines flights at BOS.[162] These hub cities are shown in Graph 27, below, and have over 11,000 American Flight Attendants based at them. The remaining 30% of American's mainline non-stop service at BOS is to other hubs with large Flight Attendant bases in Dallas, Los Angeles, Miami, and Phoenix.

[160] American Airlines Flight Attendant headcount by base from APFA.
[161] Weighted average distance of miles from BOS to five American Flight Attendant bases based on great circle distance and flight frequency from BOS (US DOT T-100)
[162] US DOT T-100 data in 2018.

Graph 27

American Has Five Nearby Hubs with Crew Bases that are Connected Directly to Boston With Over 50 Flights a Day

Distance in Miles

NYC	186
PHL	280
DCA	399
CLT	728
ORD	867

Source: Great Circle Mapper and US DOT T-100 data (2018)

107. As shown in Graph 27, American has service to and from its hubs and crew bases near BOS which provides a safety net to support operations at BOS and throughout its network. The hub-and-spoke network operated by large A4A carriers, enables airlines to support other nearby crew bases when ad hoc staffing shortages occur. The long-haul structure of Virgin's operation isolated its NYC operations and prevented the carrier from effectively utilizing crew from other bases to cover trips in New York, making their operations more constrained than other carriers with nearby crew bases.

108. As one would expect, like American, United also has access to more than 10,000 of its Flight Attendants based at three hubs connected to BOS with frequent nonstop mainline service. and are on average only 480 miles from BOS. As shown in Graph 28, these UA hubs and crew bases provide a cushion for staffing issues that arise at BOS and are only 480 miles from

BOS on average[163]. This nearby staffing cushion was unavailable to Virgin and exacerbated problems associated with the carrier's thin staffing density at NYC, as discussed below.

Graph 28

United Has Three Nearby Hubs Served by Over 20 Daily Mainline Flights Daily at Boston Providing Access to Over 10,000 Flight Attendants

Distance in Miles	
EWR	200
IAD	413
ORD	867

Source: Great Circle Mapper and US DOT T-100 data (2018)

C. Virgin's Staffing at its NYC base was Too Thin to Efficiently Cover Operations in New York

109. To maximize operational efficiency and minimize risk to schedule integrity airlines tend to place crew bases in hubs and outlying spoke cities with high flight frequencies. Basing cabin crews at hubs provides the maximum amount of coverage for their operations, as the vast majority of network carrier flights are linked to or from hubs and crew bases.[164] A carrier's ability to cover staffing needs can be assessed by the ratio of Flight Attendants in a base to outbound flight activity. The higher the ratio of employees per flight the "thicker" the operational coverage and the lower the disruption risk from ad hoc vacancies. Smaller headcount ratios portend staffing risk, as was the case with Virgin operations in NYC, especially considering the carrier's nearest bases were 2,500 miles away in California.

[163] Average distance from BS weighted by United's nonstop mainline service in 2018 (US DOT -T100).
[164] Lee at Exhibit 20.

110. Virgin reportedly had 38 Flight Attendants based in NYC at the time of closure and operated an average of 21 outbound flights per day in 3Q 2017.[165] This produces a ratio of 1.8 Virgin Flight Attendants per outbound flight in NYC. Since Virgin's A320 aircraft had 150 seats, the FAA required minimum staffing ratio was 3 Flight Attendants per flight. This means that Virgin was using California based Flight Attendants in part to provide staff of its NYC operation. This reliance on Flight Attendants from distant bases to staff Virgin's flights creates an additional operational risk at JFK if California based Flight Attendants call in sick while in NYC. I am not aware of any data sets which capture the incidence of Virgin's out-of-base Flight Attendants calling in sick while in NYC, but it is likely that it happened and added to the problems related to Virgin's thin operational coverage at JFK. If the same thing were to happen with a NYC based Virgin Flight Attendant in LAX or SFO, the company would be better able to respond due to higher density staffing at those principal bases.

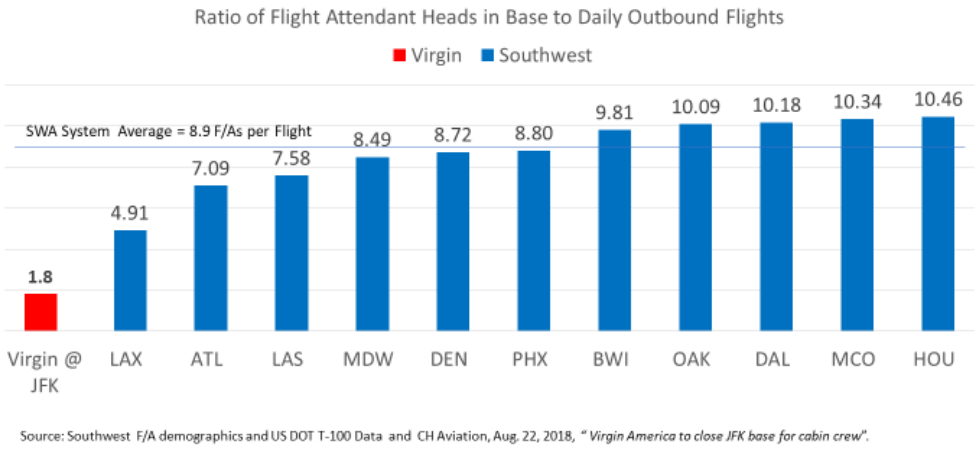
111. Virgin's thin staffing in NYC exposed the carrier to operational risk that would not be faced by large mainline A4A carriers serving BOS, which maintain crew bases at or near BOS with much higher staffing densities. To highlight this point, Graph 29, below, depicts Virgin's Flight Attendant staffing ratio in NYC of 1.8 Flight Attendants per daily flight, compared to Southwest's Flight Attendant staffing density at its 11 Flight Attendant base cities which range from 5 to 10 Flight Attendants per daily flight, averaging 8.9 Southwest Flight Attendants per daily flight in the carrier's base cities.[166] Southwest had nearly 5 time greater Flight Attendant staffing density in its bases compared to Virgin America in NYC (8.9 / 1.8 = 4.94). As a result, the

[165] Ch Aviation, *Virgin to close JFK base for cabin crew,* August 22, 2017
[166] Set forth number of Delta's NYC based FAs and number of outbound JFK and LGA flights.

operational risk associated with ad hoc vacancy coverage is much lower for Southwest in its base cities than Virgin at NYC. In addition, Southwest's much greater staffing density across its system provides the carrier with potential out-of-base coverage from bases which serve BOS with nearly 15 flights a day.[167] More than half of these flights (8.5 a day) are from Baltimore, which has nearly 2,000 Southwest Flight Attendants based there and an hour or so away from BOS . [168]

Graph 29

Southwest has a Much Higher Flight Attendant Staffing Density At All Its Crew Bases Than Virgin Had at NYC



Source: Southwest F/A demographics and US DOT T-100 Data and CH Aviation, Aug. 22, 2018, *" Virgin America to close JFK base for cabin crew".*

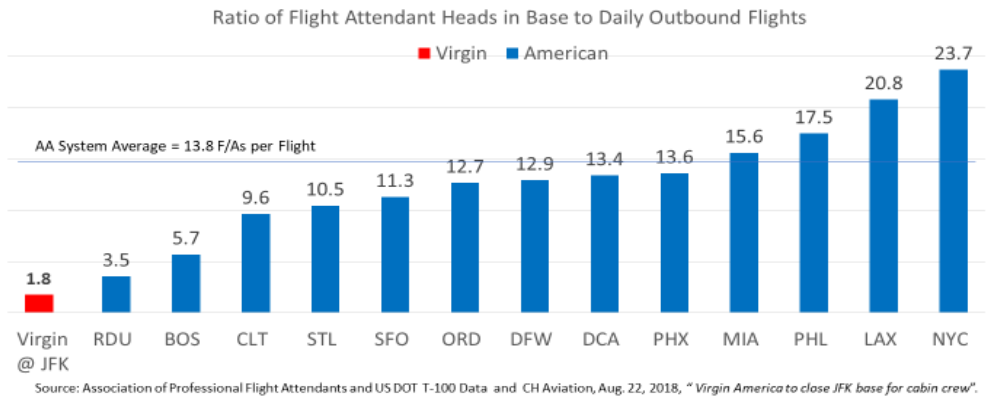
112. Southwest's staffing ratio is an advantage in mitigating risk from unexpected absences that Virgin's operations in NYC lacked. Graph 30, below, presents a similar comparison of Virgin America's Flight Attendant base staffing density at NYC with Flight Attendant staffing density existing at American Airlines 11 crew bases. As is shown Americans staffs its bases with an average ratio of 14 Flight Attendants per daily flight departure. A level of staffing coverage

[167] US DOT T-100 data for 2018.
[168] TWU 556 ad US DOT T-100data for 2018.

that is more than 7 times higher on average than Virgin America's staffing density at NYC. Notably American Flight Attendant staffing ratio at BOS is three times greater than Virgin at NYC.

Graph 30

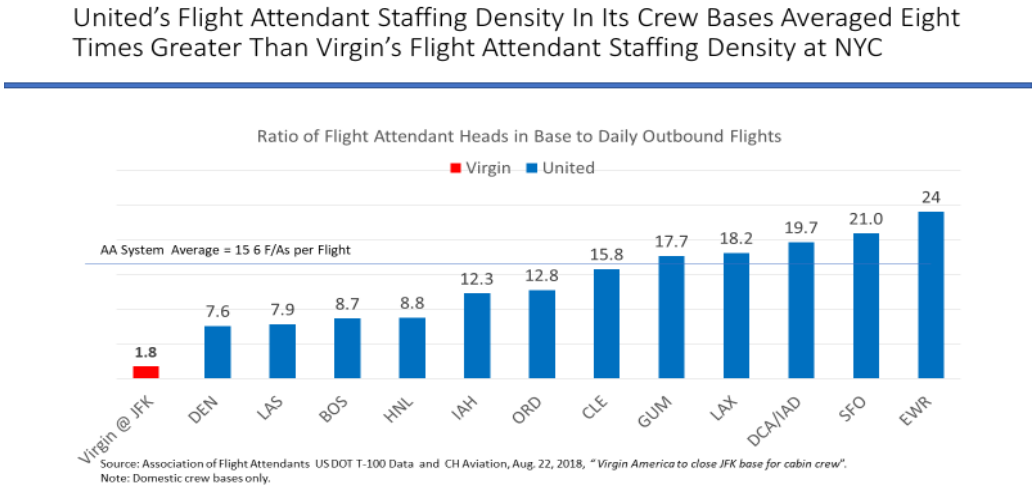
American's Flight Attendant Staffing Density In Its Crew Bases Averaged Seven Times Greater Than Virgin's Flight Attendant Staffing Density at NYC



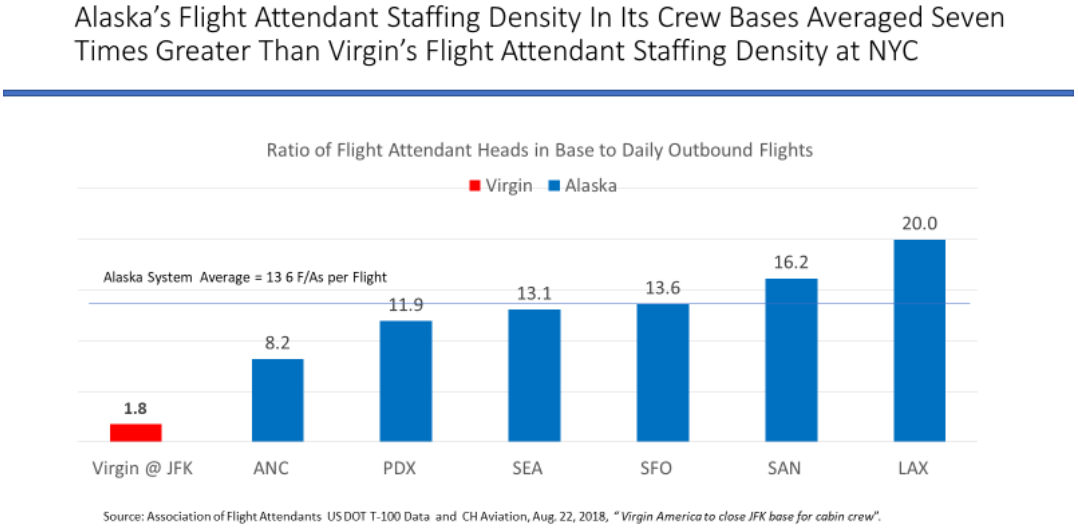
Source: Association of Professional Flight Attendants and US DOT T-100 Data and CH Aviation, Aug. 22, 2018, *" Virgin America to close JFK base for cabin crew"*.

113. Similarly, United and Alaska have Flight Attendant staffing ratios per flight that are many times higher than Virgin had in NYC. Graphs 31 and 32, below, indicate that the average staffing ratio of United at is 12 domestic bases was 15.6 Flight Attendants per daily outbound flight, while Alaska staffs an average of 8.9 Flight Attendants per outbound flight at its 11 crew bases. Notably, Alaska's extensive operations to the east coast, it does not maintain any Flight Attendant bases away from its principal hubs on the west coast extensive service.

Graph 31



Graph 32

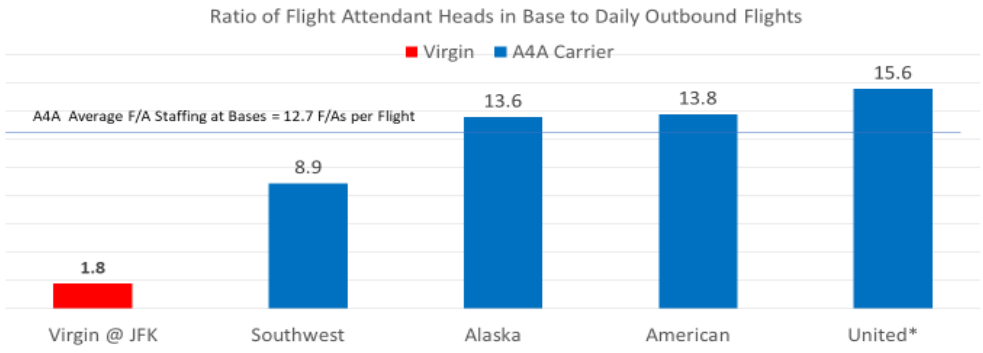


114. A summary of A4A carrier average Flight Attendant staffing density at crew bases is shown in Graph 33 below. As shown, the average Flight Attendant staffing of four A4A carriers at crew bases is seven times higher than Virgin's Flight Attendant staffing density at NYC.[169]

[169] Average staffing density of 12.7 for the four A4A carrier vs 1.8 Virgin staffing density at NYC.

Graph 33

A4A Carriers Have Much Higher Flight Attendant Staffing Density In Their Crew Bases Than Virgin's Flight Attendant Staffing Density at NYC



Source: Association of Flight Attendants, Association of Professional Flight Attendants, TWU 556, US DOT T-100 Data and CH Aviation, Aug. 22, 2018, *"Virgin America to close JFK base for cabin crew"*.
*Note: United is for domestic bases.

115. The combined problems of Virgin's thin staffing density in NYC, its 2,500-mile distance from its principal bases in California, combined with its reliance on those same distant California based Flight Attendants to staff NYC flights, created problems that would not be faced by Southwest, American and other A4A carriers serving BOS. Even facing these obstacles, Virgin was still able to absorb a doubling of Flight Attendant sick days in 2017 (versus that in 2015) with a purported marginal increase in crew related flight delays. The doubling of Flight Attendant sick days resulted in a small 1.2 percentage point increase in cabin crew delays over the same time frame, according to Dr. Lee's analysis.[170] However this marginal impact, only resulted from an assumption made by Dr. Lee, that there was a 2-year delayed response of Virgin's Flight Attendants to Virgin America's compliance with NYC's ESTA.[171] The next section discusses the weakness of this assumption and the bias Dr. Lee introduces into his analysis.

[170] Lee at paragraphs 72.
[171] *Ibid.*

D. The Impact of Virgin's Compliance with ESTA on Cabin Crew Related Delays

116. Dr. Lee's analysis of Virgin's experience in NYC is fundamentally flawed because it is based on a less-than-objective segmentation of time-series data. Rather than evaluating data from Virgin's entire post-compliance period from April 2015 through October 2017 as one, Dr. Lee chose to divide the post-compliance data set into two distinct and subjective time frames. Virgin began its compliance with NYC's ESTA Law in April 2015, but Dr. Lee chose not to consider the true effect of Virgin's compliance until two full years later in April 2017. The reasons for his choice to segment the data appear obvious from the results of his regression analysis. Dr. Lee asserts; *"This regression (discussed in detail in Appendix C) indicates that Virgin America's cabin crew delay rate for JFK departures between April 1, 2015 and March 31, 2017 (i.e., in the two years that directly followed when Virgin America began complying with ESTA), increased by 0.16 percentage points controlling for other factors and also shows that between April 1, 2017 and October 31, 2017 (i.e., after flight attendants became more fully aware of ESTA and how Virgin America's compliance with the new regulation impacted them) Virgin America's cabin crew delays increased by 1.2 percentage points"*.[172]

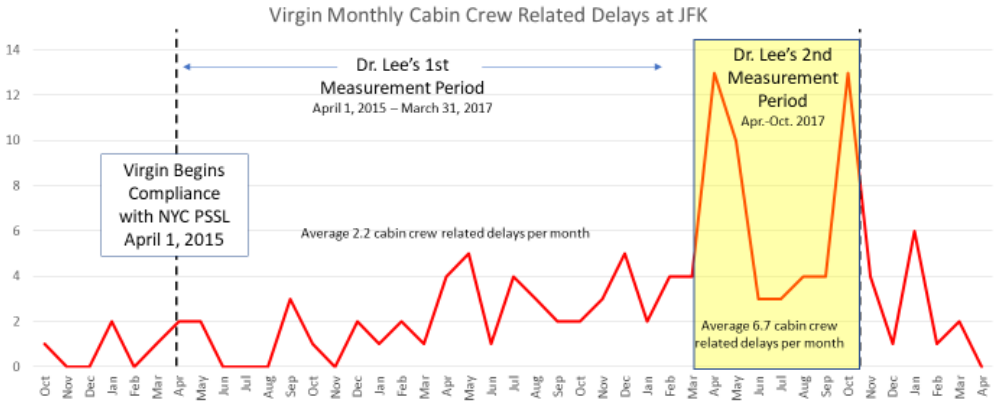
117. As Dr. Lee states, the immediate two-year period following Virgin's compliance with NYC's EASTA, from April 2015 to March 2017, produced a negligible 0.16 percentage point impact on crew related flight delays according to his analysis. By choosing to segment Virgin's experience during this initial two-year period following its compliance with ESTA from the period starting in April 2017, Dr. Lee was able to extract a more robust, but still marginal impact of increased cabin crew related delays of 1.2 percentage points. As shown in Graph 34, below, are

[172] *Ibid.*at paragraph 72.

the monthly volume of cabin crew delays at JFK recorded by Virgin from October 2014 through April 2018. As is clearly depicted, Dr. Lee' analysis is based on a segmentation of delay data in what appears to be an effort to capture a gratuitous spike in cabin crew delay beginning in April 2017. As is evident, April 2017 was a clear outlier in Virgin's crew delays and occurred when Virgin was undergoing massive strategic change. [173] By segmenting Virgin's post-compliance period subjectively into these two distinct subjective data sets Dr. Lee was able to artificially increase the level of post-compliance crew delays. There is no other reason for Dr. Lee's purposeful segmentation of data other than to produce a result which better suited his argument.

Graph 34

Virgin's Cabin Crew Shortage Related Delays at JFK and the Selection of Time Frames Dr. Lee Uses For Measuring ESTA Impact



Source: Dr. Lee, Appendix B, Carrier documents and data, 95. Virgin America cancellation and delay data

[173] From November 2016 to August 2017 Virgin America was purchased by Alaska Air Group, which announced their intention to eliminate the iconic Virgin brand and close the NYC crew base.

118. In Dr. Lee's first measurement period, the average number of cabin crew related delays for the two years following Virgin's compliance with ESTA was 2.2 per month. Over the seven-month period starting in April 2017, the average jumped dramatically to 7.1 average cabin crew delays per month, a level more than three times higher than the average in the preceding two-year period. Driving this dramatic increase in cabin crew delays during this seven-month period are three months containing outlier levels of delay.[174] As show in Chart 8 above, during the month of April 2017 Virgin's cabin crew related delays jumped to 13, a level nearly 6 times greater than the average 2.2 cabin crew delays per month experienced in the preceding two years since Virgin began complying with the NYC's ESTA in April 2015. Cabin crew delays at JFK in April 2017 (13), May 2017 (10), and October 2017 (13) combined represent more than one-third (35%) of all Virgin's cabin crew delays experienced at JFK over the entire total 31-month post-compliance period.[175] Instead of excluding these three months of clear outlier data as distortions in the data set, Dr. Lee captures them as a separate period which serve to bolster the results of his analysis. If Dr. Lee had analyzed Virgin's entire 31 months of compliance as a single data set the outlier impact of those three months would have been diluted over 31 months to an average of 3.2 cabin crew delays per month. This is an increase of approximately one crew related delay every ten days. It is also less than half the level of cabin crew related delays Dr. Lee measured

[174] The actual length of Dr. Lee's segmented second period is unclear as he addresses periods of inputs and outcomes from his analysis which are not consistent. For example, in paragraph 93 of his Report where he discusses his regression analysis related to Exhibit 24, he states "Exhibit 24 also shows that between April 1, 2017 and October 31, 2017, Virgin America's cabin crew delays increased by 1.2 percentage points. The estimated coefficient for the effect between April 2017 and November 2017 is statistically significant…". Is Dr. Lee referring to a seven-month period of input data which produce results over a longer eight-month period?

[175] The number of cabin crew related delays was 13 in April 2017, 10 in May 2017, and 13 in October 2017, for a total of 36 of 101 delays as provided in Virgin America cancellation and delay data between April 1, 2015 and October 31, 2017,

during the seven-month period beginning in April of 2017 that he chose to segment and analyze as most representative of the impact of Virgin's compliance with NYC's ESTA.

119. To justify his segmentation of post-ESTA compliance data Dr. Lee conveniently surmised that there was a two-year long delayed response to ESTA by Virgin Flight Attendants due to an effective learning curve.[176] This claim is an absurd speculation, as there is no other basis, except those discussed above, for Dr. Lee to base his analysis on this segmentation of Virgin's post-compliance data. It is clear, that the three outlier months in the seven-month period, beginning in April 2017, are not indicative of the typical incidence of cabin crew delays experienced by Virgin during the vast majority of time (28 of 31 months) since the carrier began complying with ESTA. A more reasonable explanation for the spike in cabin crew related delays beginning in April 2017 would consider the much larger strategic changes at Virgin America that was affecting the company and their employees at that time.[177] An objective analysis would consider the entire post-compliance period in whole or discard the three months of extraordinarily high level of cabin crew related delays as outliers, and not representative of 90% of the other months of Virgin's post-compliance period.

120. To highlight the infirmity of Dr. Lee's claim of the two-year delay in Virgin Flight Attendant's recognition of the NYC's ESTA law which caused a sudden changed behavior in April 2017 and indicated by a spike in Virgin's cabin crew related delays, one can observe from four of the following seven months that they must have "unlearned" their behavior. As discussed above, in three of the months of Dr. Lee's segmented seven-month data, April, May and October

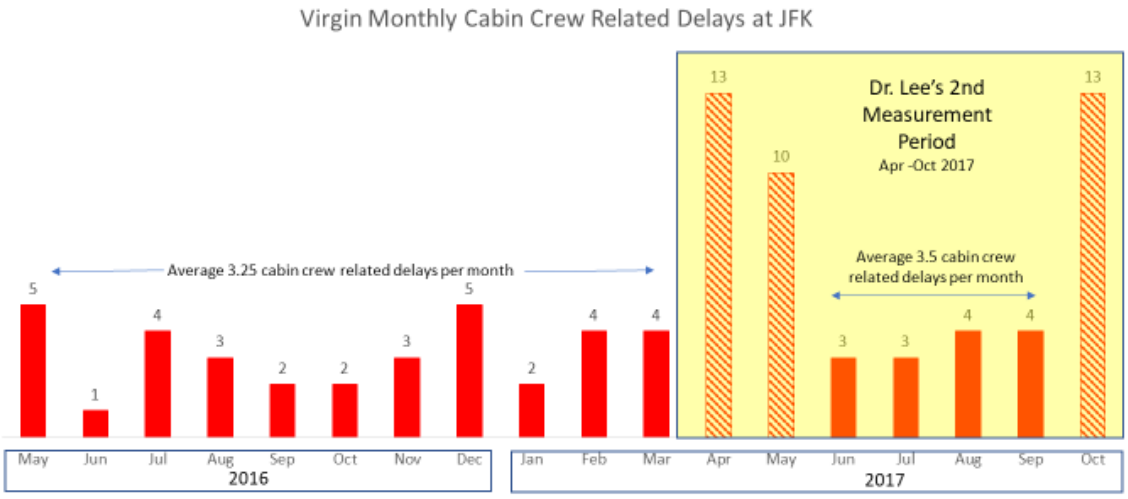
[176] Lee at paragraph 72.

[177] Virgin was purchased by Alaska Air Group in December 2016, Alaska announced it was eliminating the Virgin Brand in March 2017, and announced it was closing Virgin's NYC cabin crew base in August 2017.

of 2017 Virgin's crew related delays were dramatically higher than the preceding two-year period of Virgin's compliance with NYC's ESTA. However, in four of the months during this period, June, July, August and September of 2017, crew related delays were reduced to an average of 3.5 per month. As shown in Graph 35, below, this level of cabin crew related delays is approximately the same level of monthly cabin crew related delay which Virgin experienced in the twelve months prior to April 2017 of 3.25. Therefore, the Flight Attendants must have unlearned their behavior in April, and May of 2017, as the in months following levels of cabin crew flight delay at NYC dropped back to more normal levels. [178]

Graph 35

For Four Months After April 2017 The Data Does Not Support Dr. Lee's Theory of a Delayed Reaction To ESTA, As Crew Related Delays Returned to Near Normal Levels in June to September 2017



Source: Dr. Lee, Appendix B, Carrier documents and data, 95. Virgin America cancellation and delay data

E. Massive Strategic Changes at Virgin Affected Increases in Cabin Crew Related Delays Across its System

121. Dr. Lee appears to have not considered the large strategic changes that were occurring at Virgin which may have been, in part, responsible for the dramatic increase in cabin crew delays in April, May and October of 2017. These changes, which occurred over nine months, included the sale of the Virgin America to Alaska Air Group ("Alaska") (December, 2016), the announced dissolution of the Virgin Brand (March 2017), as well as the announced closure of the JFK base by Alaska (August 2017).[179] It is reasonable to presume these large strategic changes at Virgin impacted the unique culture at the airline and the morale of its employees, increasing stress and anxiety. It is my understanding that Alaska's announcement to close Virgin's cabin crew base in August 2017 came as a shock to many JFK-based Flight Attendants, as they had been told by Alaska that any base announcement was to be made no earlier than January 2018. [180]

122. Airline mergers are common, and the tumult and stress they cause to employee's lives could be a factor in increased cabin crew delay and Flight Attendant sick leave use. For example, on April 4, 2016, Alaska unexpectedly announced its intention to purchase Virgin America. As shown in Graph 35 above, in the immediate the two months (April and May of 2016) following the purchase announcement, Virgin's crew related delays increased to a level of 4 and 5 per month at NYC, a volume not experienced in the previous 18 months. Another example, Alaska left the fate of the iconic Virgin brand largely uncertain for nearly one full year after it signed the purchase agreement with Virgin America.[181] Alaska management had initially claimed they may choose to operate Virgin as a separate subsidiary, maintaining Virgin's unique brand,

[179] CNN Business, April 4, 2016, Wall Street Journal , Dec. 14, 2016, Air Tribune March 23, 2017, Ch Aviation, August 22, 2017.
[180] Source: Lead Flight Attendant Contract Negotiator, TWU Int'l Vice President, Thom McDaniel.
[181] Associated Press, *Alaska Airlines CEO says he might keep Virgin brand*, June 15, 2016.

service and product identity.[182] In March 2017, three months after the purchase of Virgin by Alaska was completed, Alaska management announced it had decided to eliminate the iconic Virgin brand.[183] Rather than keep the Virgin name Alaska announced they would migrate the carrier's operation, brand, and service into the more traditional airline culture of Alaska Airlines.[184] Shortly thereafter, Alaska announced it would close Virgin's New York City Flight Attendant base. [185] The largest increases in Virgin's cabin crew related delays occurred within a short period immediately following the announcement of these strategic changes and were likely responsible for the crew delay spikes observed in the data. However, despite these massive changes which were occurring during the period observed by Dr. Lee, he did not consider these factors in his statistical analysis, instead he chose to single out ESTA compliance as the likely cause.

123. If larger strategic changes at Virgin were responsible for a change in cabin crew related behavior one would expect increases in cabin crew delay to not be isolated to Virgin's JFK operation. Indeed, larger strategic changes at Virgin appear to have affected employee behavior across the carrier's system. As is shown in Graphs 36 and 37 below, Virgin's cabin crew delays, excluding JFK, increased dramatically between 2015 and 2017 across its system, and at its two other Flight Attendant bases, LAX and SFO. These increases cannot be attributable to the impact of ESTA on Virgin's operations and highlight the impact these other strategic issues were having on Virgin and its employees across its operation.

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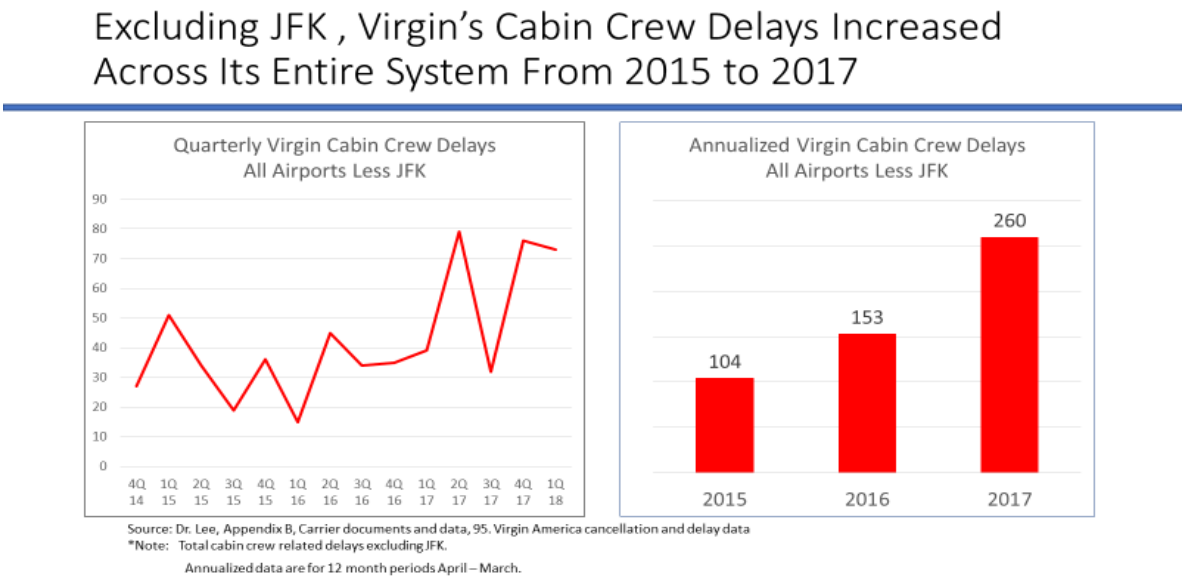
[182] *Ibid.*

[183] Aviation Tribune , *Alaska Airlines to drop Virgin America Brand in 2019*, March 23, 2017.

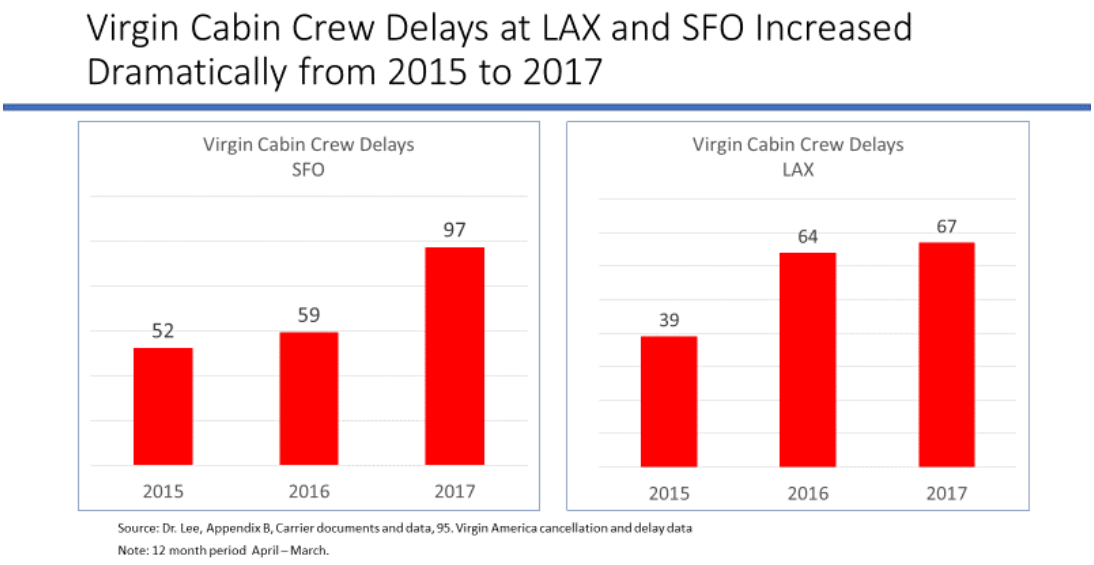
[184] *Ibid.*

[185] CH Aviation, *Virgin America to Close JFK base for cabin crew,* August 22, 2017.

Graph 36



Graph 37



124. The claims made by Dr. Lee about the operational impact of Virgin's compliance with ESTA, especially after April of 2017, should be assessed considering events at Virgin's other bases, and in the context of the tumultuous events that were occurring at the carrier. In sum, a

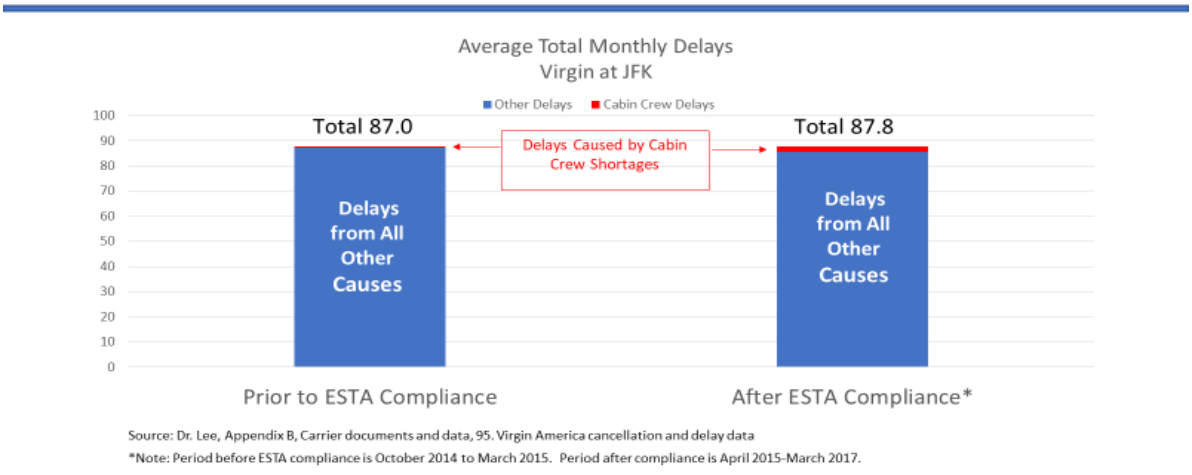
fair portrait of Virgin's 31-month experience in New York City complying with ESTA cannot be drawn from three months of outlier data from a period which began two years after compliance and in absence of the larger strategic events happening at Virgin during the delayed time frame Dr. Lee chose to segment.

F. The Relative Impact of Virgin's Cabin Crew Delays in Context of Total Delays at JFK

125. The impact on Virgin's operation of an increase in cabin crew related delays should be viewed in context of the overall number of delays. To put it into context, the incidence of cabin crew delays should be compared to all delays faced by Virgin in order to properly assess the scale of impact. As data provided by Dr. Lee indicates, Virgin's delays at JFK related to cabin crews represent only a tiny fraction of Virgin's total delays at JFK, both before and after the airline's compliance with ESTA.[186]

Graph 38

Virgin's Average Total Monthly Delays at JFK Were Not Materially Impacted by Cabin Crew Delays After Compliance With NYC's ESTA



Source: Dr. Lee, Appendix B, Carrier documents and data, 95. Virgin America cancellation and delay data

*Note: Period before ESTA compliance is October 2014 to March 2015. Period after compliance is April 2015-March 2017.

[186] Lee Appendix B

126. As shown in Graph 38, above, in the six months of data provided to represent Virgin's operational performance before its compliance with ESTA, there were a total of 0.66 average monthly delays due to cabin crew issues at JFK, out of an average total of 87.0 monthly delays at JFK from all causes. In the two years immediately following Virgin's compliance with ESTA, the carrier's total cabin crew delays averaged 2.2 per month at JFK out of a total average monthly delays caused by all factors of 87.8 delays at JFK. To put this in context, the average of 2.2 cabin crew delays per month post-compliance is equivalent to one delay every 13.5 days at JFK due to cabin crew issues and representing only 2.5% of the total delays at JFK. Thus, while cabin crew related delays did increase during the first two years immediately following Virgin's compliance, the total average number of Virgin flight delays at JFK increased imperceptivity from 87.0 to 87.8, an increase of less than 1 delay per month.

127. The "other delays" shown in Graph 38, above which represent more than 97% of Virgin's total flight delays at JFK, are composed of other carrier-caused delays, due to internal issues like fueling, flight plan changes, crew rest, etc. which make up about 24% of Virgin's total delays at JFK. Approximately 75% of Virgin's remaining delays at JFK were caused principally by weather, air traffic control, security and late arriving aircraft.[187] Table 1, below, shows the share of Virgin's departure delays by cause for the full period of compliance, from April 2015 through base closure in November 2017. For the entire 31-month period, after Virgin's compliance with ESTA, the relative share of cabin crew related delays at JFK was small, representing only 3.3% of Virgin's delayed flights at JFK *after* the carrier began complying with ESTA in April of 2015.

[187] US DOT, BTS Airline on-time performance data for period assessed by Dr. Lee after April 2015.

TABLE 3

Share of Virgin Departure Delay Causes at JFK

Delay Factor	Share
Air Traffic Control	41.1%
Other Carrier Related*	23.8%
Late Arriving Aircraft	17.7%
Weather	13.2%
Cabin Crew Related	3.3%
Security	0.9%

Source: VX Delay Data and DOT BTS

Note: For period 4/15 to 10/17

* Other than cabin crew

128. After the relative share of cabin crew related delays are put in context it seems an overreach for Dr. Lee to claim; *"the increased flight attendant absences at JFK following ESTA documented in Exhibit 19 led to an increase in flight delays and cancellations for Virgin America at JFK, which in turn significantly increased the carrier's costs of operating at that airport."*[188] According to Dr. Lee's analysis, during the first two years post-compliance Virgin's cabin crew delays increased by an imperceptible 0.16 percentage points, and only by 1.2 percentage points in his segmented seven month period in 2017 which contained obvious outliers.[189] These marginal increases in cabin crew related delays occurred during a time when, for reasons discussed above, Flight Attendant sick leave use in NYC increased dramatically. A strong indication of Virgin's ability to minimize operational disruptions by utilizing the staffing tools it and other A4A carriers possess to handle such events. Nowhere in his analysis are these claimed

[188] Lee at paragraph 70.
[189] *Ibid*. at paragraph 72.

increased costs quantified or even estimated, nor are the practical operational impact of such small marginal changes in cabin crew related delays assessed. Instead Dr. Lee relies on the statements made in the Declaration of Jeff Butler, an Alaska management official involved in a lawsuit in US District Court fighting the carrier's compliance with a similar employee sick leave law in Washington State.[190] [191]

G. Virgin's Ability to Absorb Increases in Flight Attendant Sick Use

129. Virgin's experience in the two-years immediately after compliance with ESTA show an increase in Flight Attendant sick leave use that is not reflected in the delay related to cabin crew shortages. [192] Despite its unique long-haul operation and thin staffing at its JFK base, Virgin was largely able to address increases in Flight Attendant sick leave use without suffering catastrophic impacts predicted by Dr. Lee. In Exhibit 19 on page 74 of his Report, Dr. Lee indicates that Virgin's JFK based Flight Attendants had an average increase of 0.2 days in the first-year post-compliance with ESTA, from 8.5 days to 8.7 days (from twelve months-ending April 2014 to twelve months ended April 2015, respectively). As discussed previously, this pre-compliance use of average sick leave by New York based Flight Attendants was likely at or above the 40-hour ESTA required minimum sick leave allowance. During the next twelve-month period beginning in April 2015, when Virgin's JFK based Flight Attendant's average sick days increased

[190] Declaration of Jeff Butler in Support of Plaintiff's Motion for Summary Judgment.

[191] United States District Court, Western District of Washington at Tacoma, Case 3:18-cv-05092-RBL

[192] Lee at Exhibit 19, on page 74 indicates that Virgin's JFK based Flight Attendants had an average increase of 0.2 days in the first-year post-compliance, from 8.5 days to 8.7 days from 2014 to 2015, respectively. In 2016 Virgin's New York Flight Attendant average sick leave use increased sick days by 41%, from 8.7 day in 2015 to 12.3 days in 2016. Yet, according to Dr. Lee's analysis of the impact of Virgin's Flight Attendant utilization of sick leave on the carrier's delays related to cabin crew shortages at JFK in 2015-2016 was a 0.16 percentage point increase in cabin drew related delays (Lee at paragraph 72).

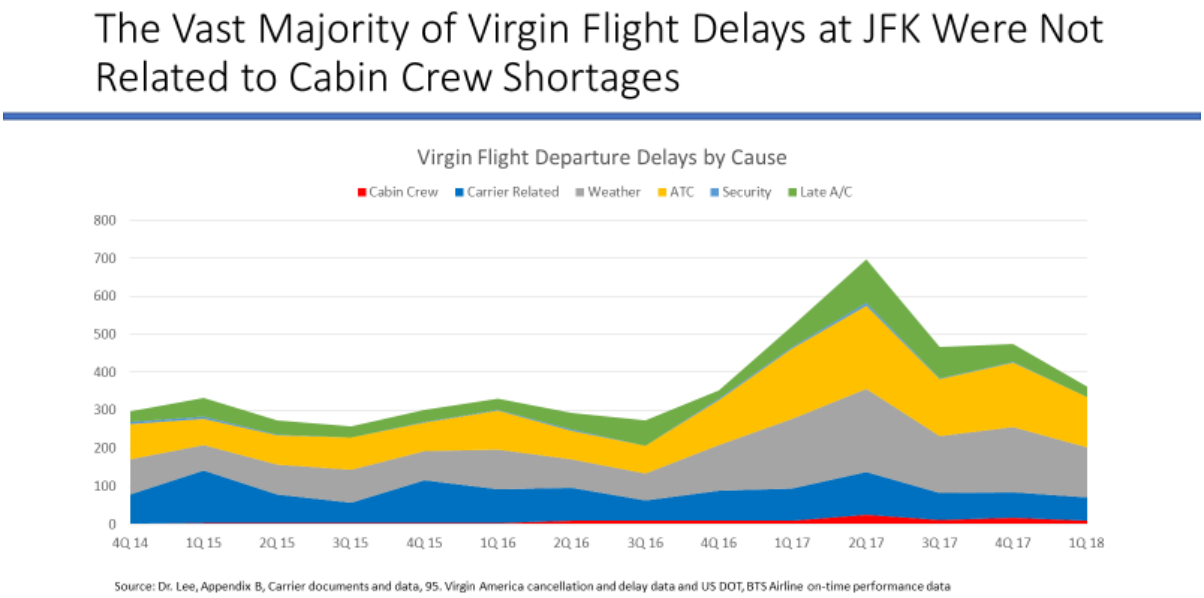
by 41%, to 12.3 days. This increase, from an average of 8.7 days to 12.3 days of sick leave use was almost entirely increases in use above the 40 hour minimum and cannot by related to ESTA, but rather Virgin's voluntary decision to change its points system to start after 40 hours.[193] Yet, according to Dr. Lee's analysis of cabin crew delays over the first two years Virgin had only a 0.16 percentage point increase in such delays.[194] Virgin was able to absorb increased sick use by Flight Attendants, highlighting the carrier's ability to cover increases in ad hoc use of sick leave with minimal impact on cabin crew related delays.

130. Dr. Lee shows the increase in Virgin Flight Attendant sick days in NYC, which jumped from 8.7 days average per Flight Attendant in 2015 to 17.3 average sick leave days in 2017, a doubling of sick leave days in two years.[195] Yet the impact of this doubling of Virgin's Flight Attendant sick leave utilization was much less significant on cabin crew related delays. As Dr. Lee's analysis indicates, there was a 1.2 percentage point increase in cabin crew delays at JFK after April 2017, despite a 100% increase in Flight Attendant sick leave use. There was an operational shock absorber at Virgin which worked to absorb vacancies created by employee sick leave utilization. Reserve staffing, junior manning, inter-base transfers and other methods are utilized by airlines like Virgin to cover ad hoc employee vacancies and prevent sick leave use from transferring into delays and cancellations.

131. As is apparent in Graph 39, below, which contains Virgin's total quarterly number of delays at JFK by cause, cabin crew delays (shown as the red area near X Axis) are barely perceptible relative to other causes of delay.

[193] Lee at paragraph 69.
[194] *Ibid*. paragraph 72.
[195] Dr. Lee uses April – March as measuring annual periods of Flight Attendant sick leaves.

Graph 39



132. Looked at from another perspective, after Virgin began complying with the ESTA Law the carrier reported one flight delay at JFK every 10 to 15 days on average related to cabin crew shortages. Cabin crew related delays appear to be largely inconsequential especially when compared to Virgin's flight delays due to other causes, which averaged 3 to 4 flight delays per day at JFK during the same time frame due to other causes. [196]

H. To Completely Offset the Increase in Virgin Cabin Crew Related Delays Virgin Would Have Had to Assign or Hire Three Additional Flight Attendants at NYC Base

133. In his report Dr. Lee considers the increase in JFK Flight Attendant's Sick Leave Use after April 2017, stating that *"the average JFK-based flight attendant at Virgin America was scheduled to work approximately 160 days per year during FYE April 2017, implying that Virgin America's JFK-based flight attendants were out sick approximately 11% of the time they were*

[196] Lee Appendix B.

scheduled to be working"[197] To put Dr. Lee's statement in context, Virgin had only 38 Flight Attendants based in NYC, which represented 3.3% of Virgin's more than 1,100 total Virgin Flight Attendants.[198]

134. To cover the increase in Virgin's Flight Attendant average sick use at the NYC base Virgin would have had to hire (or assign from other bases) no more than 3 additional Flight Attendants. As discussed previously, Dr. Lee highlights the increased in annual sick leave in Exhibit 19 of his report, wherein he shows Virgin Flight Attendants utilized an average of 17.3 days of sick leave per head in 2017, up 8.8 days from an average of 8.5 days sick leave utilized per Flight Attendant in 2014. To offset this increased sick leave use Virgin would have to add (by hiring or assigning from another base) three Flight Attendants to cover this increase at its JFK base. [199] [200] The increase of 8.8 days on average for 38 Flight Attendants between 2014 and 2017 would cause an additional 334 collective days to be used as sick days. Since each Virgin Flight Attendant worked an average of 160 days annually, it would take a little over 2 additional Flight Attendants to fill this void.

135. Virgin could transfer Flight Attendants to New York from LAX or SFO bases at little cost or it could hire three new Flight Attendants in its NYC base. Based on the average cost of $54,000 per Flight Attendant, it would cost Virgin a total of $162,000 for the full cost of hiring

[197] *Ibid.* at page 74, footnote 175.
[198] US DOT Form 41 Data, Virgin FA Full Time Equivalents for 2017.
[199] Dr. Lee segments his annual periods as 12-month segments from April to March of each period.
[200] Calculated assuming Virgin Flight Attendant average annual work days of 160 (from Dr. Lee Direct Report footnote 163 on page 67). Also assumes 38 NYC based Virgin America Flight Attendants from Ch. Aviation report 8/22/17. Taking these 38 NYC based FAs times 160 days work = 6080 total annual FA work days in NYC. Increase in days impacted by Virgin's FA Sick increase from 2014 to 2017 is calculated 38 NYC based FAs times the increase of 8.8 average days of sick used from 2014 to 2017 (2014 8.5 avg. FA sick days in NYC to 2017 17.3 avg. FA sick days = 8.8 day increase per NYC based F/A). Taking 8.8 days of increased sick leave per NYC based FA times 38 NYC based FAs = 335 additional annual FA work days to cover. Dividing 335 additional work days into 160 days of work per FA yields a need of just over 2 F/A's worth of work.

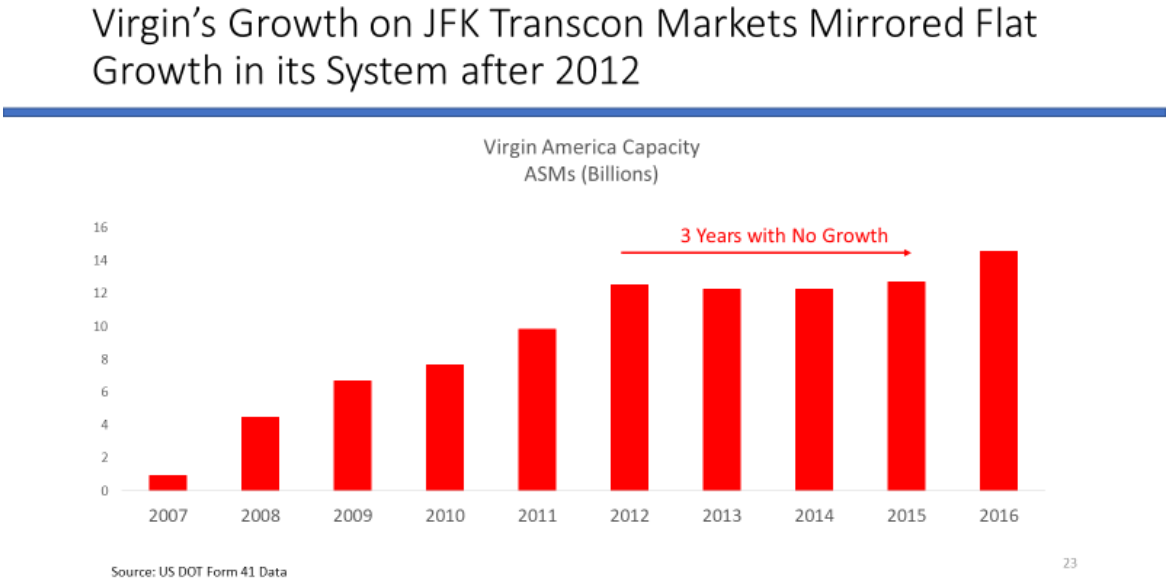
three additional Virgin Flight Attendants.[201] This additional cost is not likely to have the critical impact Dr. Lee claims would occur as a result of Virgin adjusting headcount to cover new sick leave use at NYC. Dr. Lee contends that covering these additional days with increased Flight Attendant staffing in NYC would cause increases in fares and curtail Virgin's ability to compete and expand in NYC.[202] These claims are false for the following reasons:

A. If Virgin passed along 100% of the potential increase in costs of hiring three Flight Attendants to cover increased sick use, passenger fares would increase by 0.1%, hardly the impactful change that would cause dire consequences. [203] Given the highly volatile fuel price environment faced by airlines, plus the constantly changing economic and competitive landscape, the impact of Flight Attendant sick leave on airline fares and service is inconsequential.

B. After 5 years of double-digit capacity growth and excessive operating losses Virgin effectively halted overall system capacity growth in 2012, as shown in Graph 40, below.[204] The carrier canceled and deferred dozens of aircraft orders it had planned to receive which affected its overall system growth plans, including NYC. Despite this, Virgin's capacity in NYC actually grew faster than growth in its total system.[205]

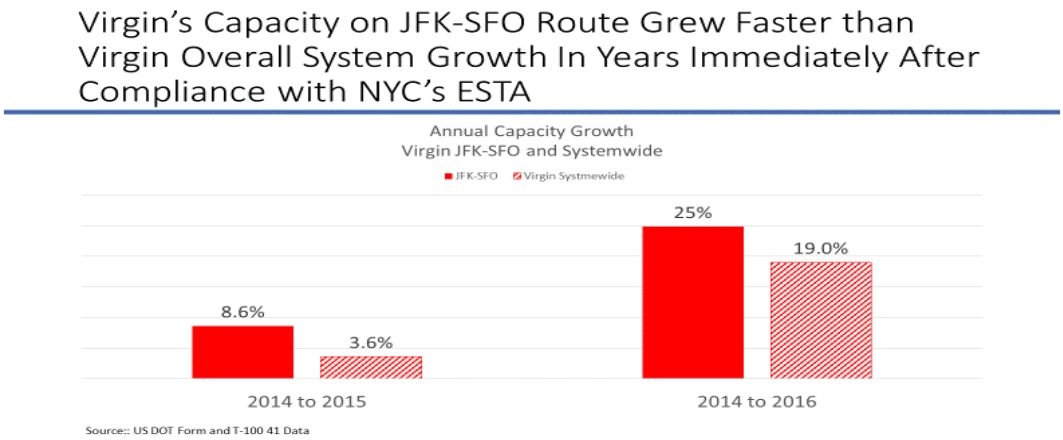
[201] US DOT Form 41 data filings show average annual Virgin FA cost per head of $53,943, or a total of $161,829 assuming 3 new NYC based Virgin Flight Attendants.
[202] Lee at paragraphs 73 and 78.
[203] US DOT data indicates that Virgin's total passenger outbound revenue at NYC airports in 2017 was $174 million. $162, 000 increase in FA cost for 3 new FAs in NYC to cover increased sick leave use is .1% of this revenue total.
[204] US DOT Form 41 Data, between 2008 and 2012 Virgin America lost over $600 million, this prompted the carrier to stop growing total capacity between 2012 and 2016 before its purchase by Alaska Air Group.
[205] CAPA, *Virgin America's continued weak financials warrant close scrutiny of its network*, November 21, 2012.

Graph 40



` 136. As shown in Graph 41, Virgin's capacity between 2014 and 2015 on JFK-SFO route grew by 8.6% compared to overall Virgin system growth of 3.6%, and in 2016 Virgin grew capacity by 25% on JFK-SFO route compared to 19% system wide.[206] [207]

Graph 41



[206] US DOT DB1B and US DOT Form 41 data.
[207] Virgin America Definitive Proxy Statement, June 20, 2016, at pages 29 – 36.

3. Expansion of Virgin's operations at NYC was not curtailed by the carrier's compliance with ESTA but rather by three unfavorable competitive factors, which resulted in the sale of the carrier;

A. Increased competition in its principal long-haul transcontinental NYC markets to LAX and SFO, principally by JetBlue and the introduction of high value "Mint" service in June 2014;[208]

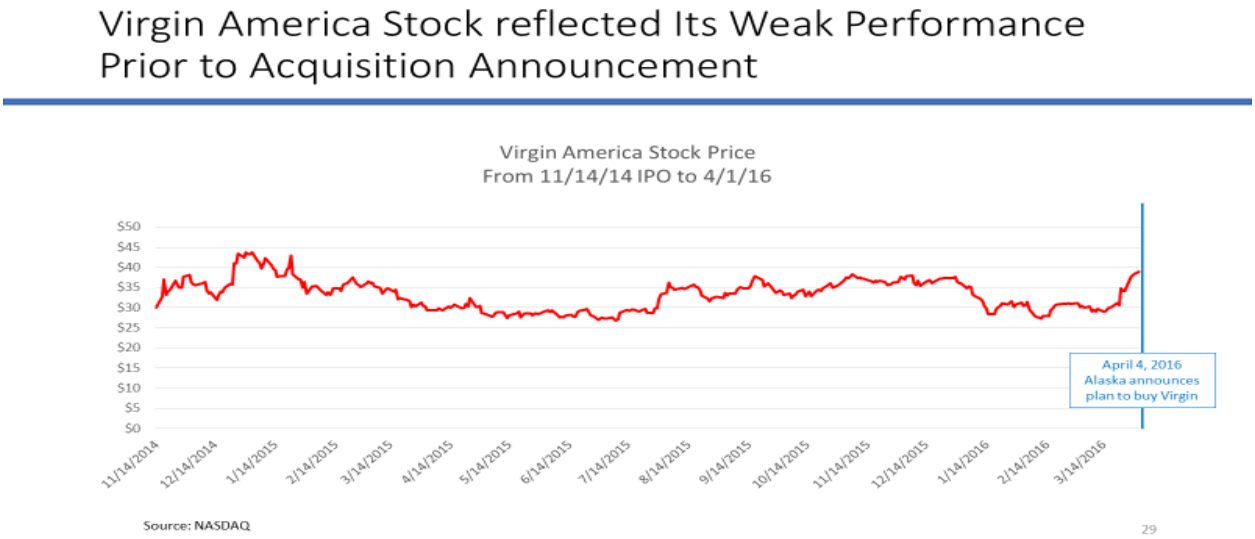
B. Virgin's lack of competitive presence in NYC prevented successful expansion. Since the US airline industry was deregulated in 1979, market presence has evolved as a key competitive component in the US airline industry. Virgin had on 2% of the JFK passenger traffic and no dominant share at any of its markets including, JFK, SFO and LAX.[209]

C. Virgin's business plan was not successful, as their core focus of operating a high-value, low-cost service in major U.S. transcontinental markets was not producing desired results. As a result, Virgin put the brakes on growth in 2012 and stopped growing its system. In the most prosperous period in aviation history, Virgin's stock price remained flat between its IPO in 2014 to just prior to Alaska Airline's successful bid in April 2016, as shown in Graph 42. The decision by Virgin's Board of Directors in late 2015 to initiate the sale of the carrier to the highest bidder was indicative of the insider's consideration of best path for the

[208] Motley fool, March 20, 2018 *"JetBlue has a Plan for beating Alaska Air – And its Working*".
[209] CAPA, November 21, 2012 "*Virgin America's continued weak financials warrant close scrutiny of its network*".

carrier to be auctioned rather than continue to compete as an independent carrier.[210] [211]

Graph 42



I. Virgin's Closure of Its JFK Base was Not Due to the Carrier's Compliance with the ESTA Law

137. In the over two and a half years of compliance with ESTA, Virgin operated over 12,000 flights from JFK, of that Dr. Lee claims a total of 103 flights were delayed due to cabin crew related issues.[212] Virgin's closure of the JFK base by its acquirer, Alaska Airlines, in November 2017 was likely due to other factors, including the inefficient Flight Attendant staffing density in NYC and the distance to Virgin's other crew bases. In March of 2017, Alaska announced they would migrate Virgin's operation, brand and service into the more traditional airline culture

[210] Virgin America Definitive Proxy Statement, June 20, 2016, at pages 29 – 36.

[211] IPO price of Virgin America common shares was $30 November 11, 2014, March 22, 2016, the day before an initial press report leaked the potential sale Virgin's share price closed at $30.67(See Virgin America Def. Proxy Statement, June 20, 2016, at page 35.

[212] Lee at paragraph 63 and Appendix B, MasFlight daily JFKLGA data file.

of Alaska Airlines.[213] Shortly thereafter, Alaska announced it would close Virgin's New York City Flight Attendant base. [214]

J. Dr. Lee Did Not Analyze the Relationship of Sick leave Use and Crew Related Delay Time

138. Finally, it is not just the incidence of delays which affect operations, but also the length of such delays. This important measure is one I strongly believe should have been considered by Dr. Lee in his assessment of the potential impact and disruption of Virgin's operations caused by delays. For example, a fifteen-minute delay has a much smaller potential impact on down-line operations than one of an hour or more. However, there is no analysis by Dr. Lee anywhere in his report on the length of actual flight delay time resulting from cabin crew delays, or other delays at Virgin in NYC.

XIV. Conclusion

139. In summary, Dr. Lee's claims that complying with Massachusetts' ESTL would force A4A airlines to alter flight service and routing, halt growth, interfere with interstate commerce and increase passenger fares, among other impacts are not credible.[215] As demonstrated above, Dr. Lee has broadly overreached in his conclusions and his alleged maladies are greatly overstated, and in many instances unsupported by evidence. Boston Logan is one of the fastest growing airports in the U.S., having had its greatest growth during the time since ESTL was

[213] Aviation Tribune, March 23, 2017, "*Alaska Airlines to drop Virgin America Brand in 2019*".
[214] CH Aviation, August 22, 2017, "*Virgin America to Close JFK base for cabin crew*".
[215] Lee examples at pages 11 and 60 at paragraph 55.

established. Logan also has average passenger fares that are lower than the national average, with fares falling faster than the national average after ESTL became law. Both Delta and JetBlue are expanding their hub operations at Boston, Republic Airlines is establishing a new crew base at Logan as Massport is investing nearly $2 Billion over the next few years to accommodate rapid growth in operations and modernize the airport. All of this activity is diametrically counter to the principal thesis in Dr. Lee's Report. ESTL has not and will not cause A4A carriers to raise fares or abandon routes or impact its service.

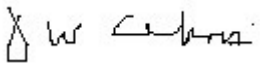
140. A4A carriers possess well-developed sophisticated operational tools which allow them to avoid the catastrophic consequences from employee access to sick leave use Dr. Lee asserts in his Report. Given the backdrop of existing flight delays at BOS, which are overwhelmingly caused by other factors, the lack of any measurable negative impact of A4A carrier compliance with ESTL at Boston is not surprising.[216] Dr. Lee's own analysis indicates that the impact of increases in employee sick leave use on delay rates is extremely modest, ranging in the 1 to 2 percentage point range.

141. As shown, Virgin America's Experience in NYC, the principal example used by Dr. Lee to inform us about the impacts of sick leave laws like ESTL on airlines operations, is not representative of the likely experience of other carriers.[217] Complying with ESTA did not cause Virgin to close its NYC base, rather the closure by Alaska Airlines Group was likely due to other factors. Dr. Lee's highly suspicious segmentation of Virgin's cabin crew delay data post-compliance undermines his analysis and the credibility of its results.[218] The increase in Virgin

[216] Dr. Lee's own analysis indicates a 0.9%-2.5% point increase in cabin crew related delays occurred in the days with the 25% highest unscheduled sick leave use by A4A Flight Attendants, *See*. Lee at Exhibit 18.
[217] Lee at paragraphs 68 and 69.
[218] *Ibid.* at paragraph 72.

Flight Attendant sick leave use in 2016 and 2017 were in excess of 40 annual hours minimum sick leave access ESTA required, and were not directly due to the carrier's compliance with ESTA, but rather the decision by Virgin to shift its verbal discipline to begin after 40 hours and nine days and other strategic changes at the carrier occurring at the time. [219] Using the actual experience of A4A carriers operating at Boston Logan after ESTL became effective serve to strongly rebut Dr. Lee's contentions.

Executed this day under pains and penalties of perjury this 27th of December, 2019, at Stowe, Vermont.



DANIEL W. AKINS

[219] *Ibid*. at paragraph 61 and Exhibit 19.

APPENDIX A

Curriculum Vitae of Daniel W. Akins

FLIGHTPATH ECONOMICS, LLC. 2013- Present

Founding Partner of consulting firm created to address pilot supply issues. Projects Include:

- Lobbying advocate in U.S Congress regarding FAA regulatory mitigation due to issues related to inadequate production of U.S. commercial pilots
- Strategic Advisor to support operating ESTA Lawn of new Part 141 flight school
- Marketing Advisor to owner of a large flight academy seeking strategic investment partner
- Expert Witness of scheduling practices in arbitration involving Kalitta Air

AKINS & ASSOCIATES, INC. 1997- Present

Economic consulting services and data analysis for airlines, airports, labor, and related concerns. Projects include:

- Expert Witness in Employee Sick Leave litigation, on behalf of New York City
- Expert Witness in patent case for Cisco Systems, Inc. regarding Global trade flows
- Financial Advisor to Republic Airways UCC during Chapter 11 Proceedings
- Expert Witness in seniority list integration: American/USAirways, United/Continental, Delta/Northwest, USAirways/America West, and Alaska/Virgin
- Advisor to APFA on AMR Unsecured Creditors Committee
- Financial Advisor in Restructuring of Global Aviation Bankruptcy
- Financial Advisor in Pinnacle Chapter 11 Bankruptcy Proceedings
- Advisor to SWA pilots in integration with Airtran pilots
- Financial Advisor to Sun Country Unsecured Creditors Committee
- Ongoing Support for Southwest Airlines in Employees Contract Negotiations

- In US-Mexico Combination Service Proceeding before the US DOT provide analytical support for USA 3000 Airlines in their bid for new service
- Guest lecturer Northwestern University, Kellogg Graduate School of Business
- Economic analyst and expert witness in Bankruptcy proceedings of American, US Airways, Mesaba, Northwest, United, Hawaiian, and Aloha
- For US Postal Service determined pilot pay rates and back-pay at termination of USPS domestic Eagle overnight cargo delivery network.
- On behalf of Southern Air Transport, prepared an economic analysis in support of their application at U.S. DOT for all-cargo service between the US and Argentina
- Evaluation of transfer of overnight transport of express mail to FedEx for USPS
- On Behalf of Air Canada and ACPA testified before the Canada Industrial Relations Board regarding the potential impact of merging pilot seniority at Air Canada and its commuter affiliates
- For Boeing Aircraft Company evaluation of global availability of short-field airports to support potential commercialization C17 cargo aircraft
- On behalf of Continental Express testified before U.S. District Court (Ft. Worth) regarding the impact of expanded operations at Dallas Love Field under the Wright Amendment

AIRTRANS, INC. 1993 - 1997

Vice President - Projects included:

- Prepared written economic testimony before the U.S. DOT supporting the successful bid of American International Airways to begin air cargo service between the U.S. and Brazil
- Air Cargo forecast and analysis on behalf of the Nashville Airports Authority
- For the State of Virginia evaluated competitive position of the Commonwealth's commercial airports and formulated proposals to address deficiencies in service.
- Analytical support for McDonnell-Douglas Corporation regarding the commercial viability of converting military cargo aircraft (C-17) to civilian freight service.
- Composed model of international traffic synergy potential for Lufthansa German Airways and Davis Companies in support of their joint bid for Continental Airlines.

YIELD DATA SERVICES, INC. 1989-1993

Vice President - Founding Partner in airline consultancy and on-line aviation data vending firm. Projects included:

- Testimony in U.S. District Court concerning valuation of pilot compensation at several Major Airlines.
- Testified as principal economist in interest arbitration of United Airlines and Pan Am pilots regarding the purchase of London Heathrow Airport operations.
- Analysis of airline traffic and capacity share for Northwest Airlines in U.S. markets.
- Econometric forecast of passenger & cargo traffic for Nantes, Pays de Loire, France.
- Worldwide air cargo market forecast for World Airways.
- Forecast near-term air cargo trade between the U.S. and several South American countries for U.S.-Brazil route case proceeding before the U.S. DOT.
- Forecast of airline labor costs for Touche, Ross & Co.
- Testimony in interest arbitration of Alaska Airlines - Jet America pilot integration.
- Market fare analysis on behalf of Air Transport Association for congressional testimony.

KURTH & COMPANY, INC. 1986 - 1988

Manager of Aviation Research - Marketing and management consultant to air carriers and airports. Projects included:

- Analysis of fleet purchasing history at Delta Airlines.
- Prepared traffic and financial exhibits in support of pilot integration proceedings of Northwest-Republic, USAir-Piedmont, Delta-Western, and Continental-Frontier.
- Testified before Postal Rate Commission on cost attribution of Third and Fourth Class Mail.

AIR LINE PILOTS ASSOCIATION. 1984-1986

Senior Economist - Provided technical assistance and policy analysis on economic, financial, and operational aspects of air transport industry for pilot organization. Projects included:

- Forecast of traffic and capacity to estimate economic performance and labor requirements at various airlines.
- Industry expert at U.S. Department of Transportation in cases regarding the employment dislocation effects of deregulation of U.S. airlines.
- Analysis of effects of two-tier wage structures on operating costs and competition.

R.L. BANKS & ASSOCIATES, INC. 1983-1984

Transport Economist - Served in consulting capacity for corporate and public clients for economic evaluation of maritime, road, rail, and air transportation projects. Involved in all phases of consulting, from development to project evaluation and completion. Applied economic theory and econometric techniques to evaluate problems in the movement of both passengers and freight.
Projects included:

- Economic analysis of rail-road-waterway competition to evaluate effects of selling the nation's largest barge line to a large railroad.
- Evaluation of containerized shipping through all Atlantic ports in Canada and U.S.
- Econometric investigation concerning retirement rates of fixed rail investments.
- Analysis of volume of freight interchanged between Con rail and the seven largest U.S. Railroads.

EDUCATION

LONDON SCHOOL OF ECONOMICS 1982-1983

Postgraduate Diploma in Economics, Mark of Merit Honours. Specialized in transport economics, econometric modeling and forecasting. Conducted an analysis of the need, siting and timing of a third major airport in London. Studied road congestion externalities, public transit operation, urban transport planning and investment policy.

GUSTAVUS ADOLPHUS COLLEGE 1977-1981

B.A. Cum Laude Honors, Economics. Majored in economics and urban planning. Undertook on-site analysis of relationship between urban growth patterns and highway development.

INSTITUTE OF EUROPEAN STUDIES, London, U.K., Autumn 1980

Studied European monetary relations and industrial organization at London School of Economics.

EXPERIENCE AS AN EXPERT WITNESS

Mr. Akins has been qualified as an Expert Witness in Airline Economics, Network Planning, Contract Analysis, Industry Structure, Econometrics and Forecasting, and has submitted written and/or oral testimony before the following Courts and Commissions:

US Department of Transportation

US District Court of Southern New York

US District Court of Washington D.C.

US District Court of North Texas

US Bankruptcy Court for the District of Southern New York

US Bankruptcy Court for the District of Northern Virginia

US Bankruptcy Court for the District of Minnesota

US Bankruptcy Court for the District of Hawaii

US Postal Rate Commission

Canadian Industrial Relations Board

Several Interest Arbitrations

APPENDIX B

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APPENDIX C

Staffing Provision Examples in Ground Service Contracts

American Airlines – TWU Fleet Service Contract 2016-2021

Article 43 (I)

> Overtime (call in contiguous or within one (1) hour of the beginning of a full time employee's shift or holdover contiguous or within one (1) hour of the end of a full time employee's shift) will first be proffered to full time employees available at the time overtime is required. If those full time employees are not available for the needed overtime, then the Company may require part time employees to work beyond their scheduled hours at straight-time rates up to eight (8) hours in a workday. The Company will proffer day-off overtime when day-off overtime is required by the Company to be worked to full time employees before the proffer is made to part time employees. The Company will proffer day-off overtime when day-off overtime is required by the Company to be worked to full time employees before the proffer is made to part time employees. Part time employees will be assigned overtime before full time employees are assigned.

Article 46 (f)

> SURPLUS EMPLOYEES AT ONE AIRPORT, SHORTAGE AT THE OTHER AIRPORT:
>
> Where there is a surplus of employees at one airport within a one station complex, and a corresponding shortage of employees at another airport, within the same one-station complex, the number of employees involved at the airport with the surplus will be equalized through reassignment of volunteers, if any. **Volunteers will be selected from valid existing transfer requests on file.** If no employee volunteers or an insufficient number volunteer, then the selection will be made on the basis of the most junior employee from the surplus at the one airport to the shortage at the other airport.

United IBT Technicians and Related Contract, 2016-2022

Article 5.E. Temporary Upgrades and Assignments

Temporary Upgrades And Assignments All vacancies (as defined in paragraph A of this Article), staffing outages in Lead positions currently, filled by incumbent employees and Inspector work at Stations where Bid Area 301 is not staffed may be filled in accordance with the following: 1. If the need arises to temporarily upgrade an employee to a Lead or Inspector (RII), the upgrade will be assigned to either an available Lead or RII qualified Technician on overtime or working a trade in the Work Area where the upgrade is needed, or by offering it to the senior qualified employee in the Craft in that Bid Area, shift, and permanent crew. If no employee on the crew volunteers for the position, it will be filled by assignment to a Lead or RII qualified Technician on overtime or working a trade outside the Work Area where the upgrade is needed, or to the junior qualified employee in the Craft in that Bid Area, shift, and permanent crew.

Article 8. B.

For holiday staffing purposes, all employees regularly scheduled for duty will be expected to report for work on their regularly scheduled shift. A volunteer list with the number of employees required per shift and bid area will be manually or electronically posted by the Company in each bid area at least fifteen (15) days before the holiday. Within seven (7) days of posting employees must electronically submit their preference to work by signing the volunteer list, or to receive the day off by not signing the volunteer list. Only those employees assigned to the bid area will be eligible to sign its respective volunteer list. If there are insufficient volunteers to work the holiday, and reduced staffing is authorized, awarding of the day off will be in craft seniority order, beginning with the most senior employee, and will be posted seven (7) days before the holiday.

Article 17 H. Overtime

4. A standard overtime call sheet or its electronic equivalent will be maintained for each Bid Area subject to these rules. To be eligible to work overtime employees must sign up correctly in ink on the overtime call sheet for their Bid

Area, initialing any subsequent changes in ink. The sign up will include the employee's name, regular shift, the shift(s) for which the employee desires to work overtime, and a phone number(s) at which the employee can be contacted if not at work when the callout is being made. All entries in the overtime call sheet must be accurate and legible.

5. If for continuity purposes it is deemed by management that an employee should stay and complete his assigned job, and the job can be anticipated to be completed within three (3) hours, then the employee performing that job may be requested to do so without regard to seniority or overtime hours charged. This will be known as "job continuation." Whenever the Company has a need to utilize this provision a "Job Continuation" request shall be made available for review by the Local Union. The Company shall keep an electronic record of all "Job Continuation" worked at all stations and make such records available for review, by the Union, for a minimum of eighteen (18) months from the date of each "Job Continuation" occurrence.

6. If the need for overtime not requiring continuity arises in a particular Bid Area in conjunction with a shift in progress, and the need is for four (4) hours, the overtime will be offered to those employees who are then working on the shift in question and who have signed the call book. The person with the least amount of overtime hours will be offered first, and the remaining need will be met by offering the overtime to the employees in the Bid Area on shift in ascending order of their overtime hours. If two or more employees have the same number of overtime hours charged the offering will be made in Craft seniority order.

a. Except as provided in paragraph 6 above, all other overtime will be

offered to employees using the call sheet. In making an overtime callout, the Company will contact the employee on the overtime call sheet who can cover the shift and has the least amount of overtime first, next least second, etc. Employees will be considered able to cover the shift, as stated above, so long as the period between their normal shift starting/ending time and the start/end time of the requested overtime request does not exceed one hundred and fifty (150) minutes, provided that the employee must report to the work area of the normal shift at the start time of the normal shift rather than remaining in the work area of the overtime shift.

b. If there are insufficient employees on the call sheet to fill the overtime requirement, the Company will solicit volunteers from the work area where the overtime originated in the Bid Area without regard to seniority or overtime hours charged, and if there are still insufficient employees to

fill the overtime requirement, may allow qualified employees from other Bid Areas to work the overtime.

c. If there still exists a need for overtime, employees not working the shift but who are regularly assigned to the Bid Area, may be assigned the overtime in reverse order of seniority.

d. Employees will not be required to work overtime against their wishes, except in emergencies. The term emergency as used in this Article shall mean "Acts of God," "Acts of War" (as declared by Congress), national emergency, natural disaster, revocation of the Company's operating certificate, the grounding of a significant portion of the Company's fleet, a shutdown of any substantial portion of the air transportation system, danger posed by the elements of weather or any other unexpected circumstance posing significant danger to persons, property or the business. "Significant danger" does not mean the typical circumstances encountered in normal daily operations. In such cases of emergency, no employee will be required to work an overtime assignment which would require him to work a total of more than twelve (12) hours for an employee normally scheduled for eight (8) hour shifts, or fourteen (14) hours for an employee who normally works a ten (10) hour shift, in any twenty-four (24) hour period.

7. When the need arises to call employees for overtime who are not on duty, the Company will begin contacting the employee(s) by phone, using a Company land line, at the number(s) listed by the employee on the call sheet. If the Company is unable to contact the employee in person at the phone number(s) listed, the employee will be bypassed.

Southwest Airlines – TWU 555 Contract, Ramp, Provisioning and Freight Agents 2016 - 2021

Article 2 Scope

B. Covered Employees. This Agreement extends to and covers all Employees in the classifications described in Article Five who normally and regularly spend a majority of their work time in the performance of duties described in Article Five. Supervisors are not covered by this Agreement but may continue to perform covered work while on duty, with the understanding that the intent is for a supervisor to assist, direct, train, evaluate agent performance and support the operation by managing and directing the workforce. A supervisor may not replace any covered Employee or cover a scheduled line. A supervisor's schedule may not be altered to prevent payment of overtime to a covered Employee, and a supervisor may not accept an overtime assignment if covered Employees are available for voluntary overtime assignments. When, at management's discretion and approval, an agent may give away their shift to a supervisor, the following will apply:

1. The agent should, when time permits, make the shift trade available to other covered Employees prior to offering it to a supervisor.

2. Supervisors that enter into a shift trade will be required to perform the work of that covered Employee for the entire shift.

3. When a supervisor is working for an agent they will be the first Employee to be involuntarily extended if the need arises on that shift.

4. All supervisors who have entered into a shift trade with a covered employee will provide a copy (may be electronic) of that shift trade to the local union representative upon approval.

Article 17 Overtime

D. Notification. Whenever possible, Employees in a shift shall be given a minimum of two (2) hours notice of overtime. It is specifically understood that no notice shall be necessary whenever normal station operations are jeopardized. The Union and the Company agree that less than two hours notification is not desirable, and the provisions of this Article must be considered when notifying an Employee of an overtime assignment. When it becomes necessary for Employees to work overtime, they shall not have their regular work schedule altered to fill an overtime assignment.

G. Continuous With Overtime. If a known overtime assignment of less than four (4) hours is available, it shall be filled by continuous with overtime (shift extension) as follows:

1. Posting. A column in the call book (Appendix A) shall be available for an Employee to indicate that he is volunteering to work continuous with overtime. The Employee will indicate either, “B” for before scheduled shift, “A” for after scheduled shift or “X” for both.

2. Agreement. When an Employee signs this sheet, it constitutes his agreement to work the overtime.

3. Seniority. Assignments shall be made to the most senior qualified Employee(s) on the sign up sheet.

4. Reverse Order. If no one signed up for overtime continuous with the beginning or ending of his shift, assignments shall be made in reverse order of seniority. If there is an Employee with less seniority who gets off later but can cover a portion of the overtime needed, the more senior Employee shall be released when the more junior Employee becomes available. This "stair stepping" of mandatory overtime shall only be done one time per assignment.

5. Rest Period. For continuous service after regular working hours, Employees shall not be required to work more than two (2) hours without being allowed a fifteen (15) minute rest period, or be required to work more than four (4) hours without a paid thirty (30) minute meal period.

H. Splitting Assignments. The Company may cover less than a full shift of available overtime, but if a block of four (4) or more consecutive hours is to be covered, the block shall not be split for assignments unless no one is eligible and available in the call book.

I. Overtime Call Book. If a known overtime assignment of four (4) hours or more is available, the overtime call book for each bid location shall be utilized. In accordance with Appendix A, to be eligible for this overtime, an Employee must complete and sign the overtime call book in ink, and must initial, in ink, any subsequent deletion or changes. All such changes must be witnessed and initialed by a supervisor. A standard overtime call book shall be used at all stations and offices. Overtime call books shall be posted for a minimum of fourteen (14) days

Mandatory Assignments. The Company and the Union agree that mandatory in advance. When an Employee signs the overtime call book, it shall constitute his agreement to work on the day for which he signed, and normal attendance rules shall apply.

1. An Employee who is assigned voluntary overtime and reports ill will be paid sick pay at his regular rate of pay. A maximum of eight (8) hours sick pay will be paid for that day. All attendance rules will apply in accordance with Article 23.

2. Assignment Order. Assignments from the overtime call book shall be assigned to qualified Employees in the following descending order:

a. By scheduling of the senior Employee of that bid location who is on his first day of rest, or who is on his second day of rest and has not worked four (4) or more hours of overtime on his first day of rest. If no such Employee is available, then:

b. By scheduling of the next senior Employee of that bid location who is on his regular workday and is at work, or has left work. If no such Employee is available, then:

c. By scheduling of the senior Employee of that bid location who is on his second day of rest and who has worked four (4) or more hours of overtime assignments are not in the best interests of either party. To maximize voluntary overtime utilization, the Company must make overtime known to the Employees, and Employees must utilize the overtime call book to the fullest. If a sufficient amount of overtime is not voluntarily obtained or if no one signed the overtime call book, the Company shall require Employees to work the overtime. It shall only be assigned as outlined in Article 7.I.2. a., b., and c. in reverse order of seniority.

a. By scheduling of the senior Employee of that bid location who has adjusted his hours because of a shift trade. If no such Employee is available, then:

e. By scheduling of the senior Employee of that bid location who is on a shift giveaway. If no such Employee is available, then:

f. By scheduling of the senior Employee of that bid location who is on a

freeday/FTO. If no such Employee is available, then:

g. By scheduling of the senior Employee of that bid location who is on vacation. If no such Employee is available, then:

h. By scheduling of the senior Employee of that bid location who is on an EAD. If no such Employee is available, then:

i. By scheduling of the senior Employee of that bid location who has completed and signed the overtime call book below the close out line.

6. Mandatory Assignments. The Company and the Union agree that mandatory overtime assignments are not in the best interests of either party. To maximize voluntary overtime utilization, the Company must make overtime known to the Employees, and Employees must utilize the overtime call book to the fullest. If a sufficient amount of overtime is not voluntarily obtained or if no one signed the overtime call book, the Company shall require Employees to work the overtime. It shall only be assigned as outlined in Article 7.I.2. a., b., and c. in reverse order of seniority.

United – IAM Fleet Services Employees Agreement 2016 – 2021

Article 1. E. Temporary Assignments

Temporary Assignments. Temporary assignments will be filled as outlined below:

1. Short Duration Assignments. The Company can create and fill vacancies of less than 60 days for any position within a classification with active employees for any reason. Any such assignment of 60 days or more will be posted as a vacancy as described in Section C above. Exclusive of vacation requirements, when a Lead job in a work group for a full shift is regularly filled each workweek by temporarily upgrading an employee more than half of the time for 60 consecutive days, a regular Lead vacancy will be bulletined and awarded. The Company and the Union will meet to discuss extenuating circumstances that may indicate a permanent Lead is not required for short-term operational needs or unexpected outages.

Article 9.

7. Awarding Overtime

a. When overtime is scheduled with less than 24 hours' advance notice, employees may add their names to the overtime sign-up list any time after the planned overtime award process is complete.

(i) Voluntary Offer of Overtime. Overtime of 1 hour may be offered to employees, in seniority order when possible, prior to or after the employees scheduled shift on a voluntary basis. Employees will be paid for the full hour at the applicable rate of pay and may be given one or more assignments. Assignments are not considered overtime under this section, will not be subject to any overtime sign-up or equalization rules, and will not count toward an employee's overtime balance.

(ii) When more than 4 hours are needed, the Company will attempt to notify employees of the available overtime shift by contacting, in equalization order, employees who are on a regular day off, with preference to eligible employees on the shift of the overtime need, and then other eligible employees on the equalization list. If the initial attempted contact does not result in the awarding of the overtime, the Company may immediately contact successive employees until the offer is accepted.

Once overtime is offered, an employee must immediately accept or decline the offer. If the offer is accepted, the employee will be assigned the overtime.

(iii) When more than 1 but not more than 4 hours of overtime are needed at the end of a shift, the Company will attempt to notify employees of the overtime opportunity at least 2 ½ hours before the start of the work to give them the opportunity to add or remove their names from the overtime sign-up list. Two hours before the overtime assignment starts, the sign-up list for any such overtime assignments will close, and this list will be used to assign the overtime. If the 2 on is not met, the employee will not be obligated to work the overtime. Assignments will be made from the shift immediately preceding the overtime need.

(iv) When more than 1 but not more than 4 hours of overtime are needed in advance of a shift, the Company will attempt to contact eligible employees on regular work days who have signed up, whose shift is immediately following the overtime need. If the initial attempted contact does not result in the awarding of the overtime, the Company may immediately contact successive employees until the offer is accepted. Once overtime is offered, an employee must immediately accept or decline the offer. If the offer is accepted, the employee will be assigned the overtime.

(v) When more than 1 but not more than 4 hours of overtime are needed that is not continuous with a shift, the Company will attempt to contact eligible employees on regular work days who have signed up. If the initial attempted contact does not result in the awarding of the overtime, the Company may immediately contact successive employees until the offer is accepted. Once overtime is offered, an employee must immediately accept or decline the offer. If the offer is accepted, the employee will be assigned the overtime.

8. Overtime Equalization

a. When awarding overtime as described above, overtime hours will be balanced among employees on an equalization basis to provide the first opportunity to the employee with the least number of overtime hours and the last opportunity to the employee with the highest number of overtime hours. In balancing employees' hours, employees' overtime hours will include overtime hours on a straight time basis that are:

(a) worked or (b) offered and declined. If 2 or more employees' overtime balances are equal, Bid Seniority will govern. Overtime balances will be posted electronically.

(i) The initial establishment of the overtime equalization list at a station will be accomplished by prioritizing employees in descending Bid Seniority order with 0

hours assigned to each. Balances will be zeroed quarterly and employees on the list will be reprioritized in descending bid seniority order.

Stations will establish a single station equalization list.

b. No charge will be made to an employee's overtime balance if overtime is offered and declined during an employee's scheduled vacation.

c. When a non-probationary employee is placed on a different overtime list, the individual will initially be charged with the average hours of the employees on the list.

d. Probationary employees will be offered overtime only after all other qualified non- with the average hours of employees on that list, plus the overtime hours actually worked during the employee's probationary period.

e. Upon returning from a leave of absence, an employee must notify management to be eligible for overtime. Upon returning from any absence of 45 days or more, the employee will be charged with previous balance or the average hours of employees on the list, whichever is greater.

f. No employee will be offered overtime which would require them to work (including their regular shift) in excess of 16 hours in any period of 24 consecutive hours.

9. Mandatory Overtime

a. Mandatory Overtime is overtime that an employee is assigned and required to work involuntarily and will only be required in operational emergencies when sufficient voluntary overtime cannot be secured to maintain the Company's operation. Mandatory overtime will be limited to the number of employees and hours required to cover the emergency as determined by local management.

b. Mandatory overtime will not exceed 4 hours past an employee's scheduled shift in any 24 hour period. Employees will not be required to work mandatory overtime until the opportunity to work the additional hours has been offered to all qualified employees who are currently at work, and if there are an insufficient number of volunteers, then to otherwise eligible employees whose names remain on the overtime call sign up list.

c. Mandatory overtime will be assigned in reverse bid seniority order according to shift time, except that employees already working overtime will be assigned last.

d. Every attempt will be made to notify employees on duty of mandatory overtime at least 1 hour in advance. If 1 hour's advance notice is not provided, the employee will

receive 1 ½ hours' pay as a penalty in addition to the pay earned for any mandatory overtime hours actually worked.

e. Employees will not be assigned mandatory overtime during their vacation periods. For this purpose, the vacation period is defined as the period beginning 24 hours after the commencement of the employee's last regularly scheduled shift before the vacation commenced. An employee may be assigned to mandatory overtime on the last regularly assigned shift prior to a vacation or DAT day, but will be placed at the bottom of the mandatory overtime list.

f. If any mandatory overtime causes a rest period violation to occur, every attempt will be made to adjust the employee's shift to provide the minimum 8 hours rest.

g. All mandatory overtime hours will be paid at the applicable rate of pay but not less than the time and one half (1.5X) rate of pay regardless of work status or hours worked. If an employee is required to work mandatory overtime on two or more consecutive days, the minimum payment for all mandatory overtime hours worked will be at the double-time (2X) rate of pay.

EXHIBIT 2

UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MASSACHUSETTS

AIR TRANSPORT ASSOCIATION OF, INC., AMERICA, INC., d/b/a AIRLINES FOR AMERICA, Plaintiff, v. MAURA HEALEY, in her official capacity as Attorney General, Commonwealth of Massachusetts, Defendants.	Case No. 1:18-cv-10651-ADB

SUPPLEMENTAL REPORT OF DANIEL W. AKINS

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Daniel Akins, for his Declaration under oath, says:

I. Qualifications and Assignment

1. I am an air transport economist with over thirty years of airline industry consulting experience. I own my own consultancy firm, Akins & Associates, Inc., based in Stowe, Vermont. I am also a partner in aviation consultancy Flightpath Economics, LLC, as well as President of the Aviation Workforce Alliance, a non-profit corporation focused on the search for and creation of solutions to address the shortage of technically skilled aviation employees. My qualifications and experience are set forth in my Curriculum Vitae, which is attached as Appendix A in my rebuttal report submitted in this matter on December 27, 2019.

2. In my rebuttal report I responded to the analysis and assertions made by A4A witness Dr. Darin Lee in his Initial Report in this matter, dated November 12, 2018. I am submitting this Supplemental Report to provide context on the impact of the current global pandemic on airlines and their employees, as well as a response to Dr. Lee's Rebuttal Report dated August 31, 2020. For the reasons I explain below, Dr. Lee has not demonstrated that his statistical projections have any practical significance or that the negative impacts he anticipates would be caused by A4A carrier compliance with the Massachusetts' Employee Sick Time Law "ESTL" has or will come to be pass. Simply put, he lacks compelling, persuasive evidence to bolster his claims and his assertions should not block airline compliance as their employees need access to paid sick time now more than ever.

II. Summary of Opinions

3. The structure of this report is designed to focus on the continuing failure of Dr. Lee to provide compelling evidence of the practical impact of his repeated claims regarding airline compliance with the Massachusetts earned sick time law (ESTL or the Law). Also discussed is the need for a current reassessment of the importance of the ESTL, under dramatically changed circumstances in the airline industry and public health. I also consider the heightened benefits of the Law to the public, airline employees, and passengers, the burden of the Law on airlines, and the practical impact of the Law on airlines. I also address several other issues that have developed since filing my original Rebuttal Report in December 2019. These issues include:

a) the impact of the pandemic on the airline industry and the long-term, potentially permanent changes to airline operations resulting from the impact of the COVID-19;

b) an evaluation of Dr. Lee's newly developed basis for his erroneous claims of the outsized practical impact of the Law on costs, fares and airline operations, and;

c) to respond the principal rebuttal claims and examples used by Dr. Lee in his Rebuttal Report and explore the data and analysis on which they are based.[1]

[1] Expert Rebuttal Report of Dr. Darin Lee, Ph.D., August 30, 2020.

A. Introduction

4. Although in his rebuttal report Dr. Lee makes several attempts to reassert his view of the practical impact of ESTL on delays, fares, and airline operations through challenging certain aspects of my Rebuttal Report, he fails to do so. Outside of arguments about the hypothetical or potential impact Dr. Lee asserts, the fact remains that after hundreds of pages of testimony in this and previous cases, he has not been able to demonstrate a practical impact of ESTL on Boston carriers' routes, services or fares, through application of his statistical analysis. This is because the abundance of evidence since ESTL was enacted runs contrary to his assertions. Boston's incredible growth and decreased fare level post-ESTL is an inconvenience to Dr. Lee as it demonstrably undermines all his claims and statistical predictions. It has been more than two years of experience at Boston and, unlike Virgin America's experience in New York, there has been no "epiphany" of what Dr. Lee asserts is a sudden realization by employees that the Law was available for their abuse as he claimed happened with Virgin America Flight Attendants in New York. There has not been a mass exodus of airlines from Boston due to ESTL; in fact carriers have greatly expanded operations at Boston, and at the same time have lowered fares in a period with fewer carrier-caused delays. To advance his opinion, Dr. Lee's proof has to extend beyond the results produced from his statistical modeling and must explain why his predictions have not become the reality. Dr. Lee's response to my challenges is not credible. It is beyond reason to assert, as he does, that the historic expansion of airline operations in Boston after ESLT, would have been even better without it.[2]

[2] *Ibid* ¶ 69 "*Finally, Mr. Akins's argument suffers from the logical flaw of failing to account for the possibility that fares may have been even lower in Boston and there would have been even more growth if not for certain A4A carriers' compliance with the Law for its ground employees".*

B. Summary Conclusions

5. In his Rebuttal Report, Dr. Lee states *"Mr. Akins's primary arguments include (i) compliance with the Law has not and will not cause material impacts on airline costs or passenger fares; (ii) flight crew reserve systems can adequately address staffing should the Law lead to unexpected shortages of employees; and (iii) downplaying the practical significance of the Law's impact on airline operations."* Despite Dr. Lee's efforts to the contrary, I maintain each of these conclusions and suggest Dr. Lee's hypothesis needs reassessment given (i) the abundance of ESTL related data at Boston proving the opposite, and (ii) the wholesale rejection of his same theories in a recent federal court decision. He also needs provide a better explanation than *things would have been even better without ESTL*.[3]

6. My principal conclusions are as follows:

a) The historic growth in routes and services, plus the decrease in fares at Boston since ESTL became law in 2015 highlight the fundamental fact that the underlying source of airline choice of routes, services and fares are based on underlying economic, demographic and geographic factors, all of which are favorable in Boston and serve to minimize ESTL compliance issues. [4]

b) Dr. Lee cannot dismiss the historic growth in airline operations and low fares at Boston post-ESTL, facts that directly contradict the basic tenets of his claims, by simply asserting without citation to any data or other evidence that

[3] Ford Harrison. US Laboris USA Global HR Lawyers, "U.S. District Court Rules in Favor of Airline Flight Crew Employees on Paid Sick Leave Challenge", October 18, 2018.

[4] Lee Rebuttal Report, op. cit., ¶ 68.

Boston would have grown even faster and fares would have been even lower without ESTL. There is no basis for this speculative hypothesis.[5]

c) Dr. Lee has not established any evidence to support his many claims of the purported negative impacts of ESTL on airline fares, routes and services. As events and data clearly show, ESTL has been inconsequential on airline operations and fares and the projected negative impacts have not been realized to any measurable extent.

d) A federal court in the Washington State paid sick leave case rejected Dr. Lee's claims and found that the benefits of ESTL to the travelling public and airline employees outweighs the purported costs. I believe this is likely more true today considering the implication of the coronavirus pandemic.[6]

e) The coronavirus pandemic has had a debilitating impact on the airline industry that will likely continue long into the future and affects the basis of the analysis and conclusions made regarding ESTL, which are drawn from operations in the pre-pandemic period.[7]

f) Due to the pandemic, air carriers are dramatically shrinking and restructuring their networks around those routes and services which are the most robust, focusing instead on markets which are fundamentally strong like Boston.[8] A smaller operational footprint based on the strongest markets will further

[5] See Section III below.

[6] Ford Harrison, op. cit.

[7] All data and evidence produced in this case thus far was produced pre-pandemic.

[8] Lee Rebuttal Report, ¶ 68, *" Spurred by Boston's above-average population growth and booming business environment, together with the city's prime location for transatlantic travel, airline competition at Logan International Airport has increased with the expansion of carriers including Delta and JetBlue."*

diminish the purported practical impacts on air carrier operations and fares resulting from compliance with ESTL.[9]

g) All of Dr. Lee's analysis, results and claims are based on a level of airline operation, delays and structure that no longer exists, further minimizing the impacts of his claims and projections.[10]

h) Declining A4A carrier-caused delay trends, when measured as a share of departures *at* Boston, undermine Dr. Lee's claims that such delays at Boston would increase due to carrier compliance with ESTL.[11]

i) Dr. Lee artificially inflates the purported practical impacts of ESTL based upon an analysis comprised entirely of pre-pandemic data and circumstances which are no longer representative.[12]

j) Dr. Lee's examples are of no value to prove his hypothesis about sick leave use and downstream delays. Dr. Lee uses an illusory example of an aircraft's downstream flight delay "propagation" that he falsely attributes to one initial crew related delay.[13] Careful inspection of the causes of downstream flight delays in his example, however, reveals that the initial crew related delay is not the only or primary cause of the subsequent downstream delays. In fact, his example points to an airline's ability to recover from the recurrent impacts of delay and to reduce or eliminate downstream propagation.

[9] See Section III, below.
[10] For example, a smaller operation results in a smaller economic and traffic footprint, and reduce the purported impact of ESTL.
[11] See Section XI., below.
[12] See Section IV., below.
[13] Lee Rebuttal Report, op. cit., ¶ 45.

k) Dr. Lee is wrong to claim that the pandemic amplifies the impact of ESTL on carrier routes, services, and fares. Changes occurring due to the pandemic will diminish purported impacts of ESTL on carriers' operational choices.[14]

l) Dr. Lee has not established that compliance with ESTL will cause a rampant increase in sick leave use, which he claims would occur due to restrictions under ESTL on an airline's ability to police access to paid sick leave through the threat or use of disciplinary action. Furthermore, under ESTL employers can still impose discipline for a clear pattern of abuse regardless of Dr. Lee's claims to the contrary.[15]

m) The protracted decrease in airline operations further reduces any purported impact of cabin crew sick leave use on the number of flight delays. The dramatic drop in the level of A4A carrier flights at Boston due to the pandemic caused a significant reduction in the number of flights exposed to cabin crew delays and the purported number of reserves necessary to fulfill staffing requirements. At pre-pandemic levels of activity, the purported impact of ESTL resulting from the application of Dr. Lee's statistical results produces, at most, an expected delay increase of 3 to 6 flights a day for all 5 A4A combined at Boston. [16] Under the current, much-lower flight volume at Boston, delay

[14] See Section III., below.

[15] Akins Rebuttal Report, ¶ 97, citing the Declaration of Cynthia Mark, Chief of Fair Labor Division of the Massachusetts Attorney General's Office, *"employer may discipline an employee who exhibits a clear pattern of using earned sick time on days immediately preceding or immediately following a weekend, vacation, or holiday, unless the employee provides verification of an authorized use of earned sick time".*

[16] Akins Rebuttal Report, Paragraph 82-83*, where I state, "[t]he practical impact of the purported increase in flight delays claimed by Dr. Lee in the range of 1 to 2 percentage points related to Flight Attendant sick leave use should be considered not only in relation to the existing base of delays, but also should be viewed in context of the variations in monthly delay shares experienced by A4A passenger carriers at BOS, as shown elsewhere".*

estimates drop to 1 to 2 flights a day for all A4A carriers combined.[17] [18]

n) In his Rebuttal Report, Dr. Lee magnifies the potential impact of ESTL by overstating the purported cost of compliance through exaggerated headcounts and by applying these cost to a greatly expanded carrier group composed of 8 additional non-A4A carriers.[19] Importantly, even with his inflated and erroneous cost assessments, there are no practical impacts on fares, and by implication no impact on airline routes and services either.[20]

III. Inconvenient Truth at Boston: Broad Factual Evidence at Boston Undermines the Core of Dr. Lee's Hypothesis

7. The tremendous operational growth that propelled Boston to be the fourth fastest growing airport in the U.S. post-ESTL coupled with the evidence that fare levels at Boston fell faster and to a lower level than the average in the U.S market is clear evidence that ESTL has not had the impact Dr. Lee repeatedly claims it would.[21] Dr Lee suggests that we should just ignore what has actually happened at Boston post-ESTL He reasons, "[*f*]*inally, Mr. Akins's argument suffers from the logical flaw of failing to account for the possibility that fares may have*

[17] In paragraph 38 of his Rebuttal Report, Dr. Lee's creates a self-serving and wholly unsupported premise to in an attempt to bolster his assertion of the practical significance of the purported impact of 1 to 2% increase in flight delays at BOS caused by crew sick leave use. This new assertion is based on a psychological conclusion (for which he is not qualified), as he states " *[a]s a preliminary matter, while it is true that many flights are delayed, passengers consider non-controllable delays (i.e. weather) and controllable delays caused by carriers (e.g. cabin crew delays, maintenance) differently, and they are much less forgiving of the latter".* To support this contention Dr Lee refers s to footnote 101, where he provides a newspaper accounting of an anecdotal incident relating to a statement from a single airline passenger who was purportedly told a delay to her flight was being blamed on weather, when it was really a mix of maintenance, staffing and weather issues. This is an absurd basis from which to make his broad premise and one does not serve to bolster the significance of the practical impact of ESTL.

[18] Flight volume at Boston Logan airport is down 61.1% from last year from latest available data, August 2020. Source: Massport, Boston-Logan International Airport, "Monthly Airport Traffic Summary - August 2020"

[19] Lee Rebuttal Report, op. cit., ¶ 64.

[20] Akins Supplemental Report, ¶ 12.

[21] Akins Rebuttal Report ¶ 29-32, Lee Initial Report, op. cit, pages, 9, 10, 11, 12, 15, 21, 39, 40, 52, 59, 65, 66, 67, 72, 85, & 87.

been even lower in Boston and there would have been even more growth if not for certain A4A carriers' compliance with the Law for its ground employees".[22] In essence, Dr. Lee claims that without ESTL growth and fare levels would have been even *more* beneficial than they were and that I should have considered this in my analysis. His hypothesis, however, is speculation, not supported by any data. Rather than suggest I failed to consider the possibility that airfares could have been lowered than they were since ESTL, Dr. Lee fails to consider the equally likely event that air fares could have been higher, especially since air fares at Boston fell faster and to a lower level than the average in the U.S. market after ESTL. The explosive-growth in air carrier operations and low fares at Boston since ESTL provide overwhelming contrary empirical evidence which completely undermine Dr. Lee's hypothetical claims. This set of circumstances suggests how difficult it is to rebut in theory that which in fact occurred at Boston.

8. As I stated in my Rebuttal Report, "*Dr. Lee provides no evidence to support his theory that A4A carrier prices, services or routes would be affected by compliance with Massachusetts ESTL. In fact, the evidence strongly suggests that his principal assessment of impact of ESTL on airline operations is substantially off base given the recent successes at Boston Logan airport, propelled by dramatically expanding airline service at lower fares*."[23] I continue to believe this to be the case and Dr. Lee has no effective rebuttal. Dr. Lee is also mistaken in his contention that growth at Boston would be restricted as prospective expansion into markets with employee paid sick leave provisions, like ESTL, would discourage such developments.[24]

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[22] Lee Rebuttal Report, op. cit., ¶ 68.

[23] For example, Boston Logan was the 4th fastest growing major airport in the U.S. from 2017-2018. Source: OAG, *North Americas Fastest Growing Airports in 2018*.

[24] Lee Initial Report, page 14, "*Thus, any exogenous factor—including the Massachusetts Earned Sick Time Law—that discourages a carrier from establishing or maintaining a flight crew base in a city or state also impacts the routes and services that will be offered from that city or state, and in turn, the fares paid by passengers".*

IV. Dr. Lee's Multiple Attempts to Inflate the Practical Impact of ESTL Are Flawed and Should be Rejected

9. In his Rebuttal Report, Dr. Lee develops two examples that inflate the potential impact of ESTL on airline costs and operations. Both have flaws. One grossly and errantly exaggerates the costs of compliance.[25] The other focuses on a smaller subset of delays to incorrectly imply that a larger percentage of flights are impacted. And as explained below, both should be rejected, particularly given what has actually happened at Boston, and elsewhere, since 2015.

A. Dr. Lee Overstates Purported ESTL Flight Attendant Staffing Costs

10. In my Rebuttal Report I attempted to contextualize the purported expense for ESTL compliance by assuming a purported 1% to 2% higher incidence of crew related flight delays, as Dr. Lee contends.[26] I defined a range of likely costs myself since Dr. Lee, despite making no attempt to estimate these costs himself, repeats broad claims about the increase in ESTL related costs driving increases in fares, and by implication, affecting routes and service.[27] My analysis of potential change in Flight Attendant costs was an attempt to provide some context Dr. Lee's own research results, and to illustrate the low costs and minimal impact on

[25] Lee Rebuttal Report, op. cit. ¶64

[26] See, Akins Rebuttal Report, December 27, 2019, ¶ 39 where I stated, *"Perhaps one reason Dr. Lee does not attempt to estimate the potential cost of covering increased use of employee sick leave or the potential impact on passenger fares he claims would result, is because the impact is negligible. One can provide an estimate of the financial impact from an analysis of data related to Dr. Lee's claim of a 1% to 2% increase in flight delays during Flight Attendant high sick leave periods. The results show that if such Flight Attendant high sick leave periods were made permanent due to ESTL, the cost of increased staffing needed to offset such increased delay exposure at Boston would be approximately 0.01% to 0.05% in annual Flight Attendant costs for all five A4A carriers combined. This calculation is shown in Table 1 below. Dividing these costs into the number of annual passenger enplanements at BOS the average impact on fares would range from an estimated 6 cents to 25 cents, if these potential costs were passed directly to passengers. Hardly the type of impact that would cause a decline in operations or increase in passenger fares, that the empirical data have confirmed. "*

[27] Lee Rebuttal Report, op. cit., ¶ 64 ,for example. And Lee Initial Report, op. cit., ¶ 42, for another example.

fares such purported staffing would cause. In response, Dr. Lee attacks my efforts, based on his own statistical results, to establish a cost estimate and potential impact on fares if such costs were passed onto passengers

11. For argument sake, my original estimate of such costs implicitly assumed that all 5 A4A carriers had Flight Attendant bases in Boston, which they do not, and were subject to ESTL, which they are not. In paragraph 39 of my Rebuttal Report, I demonstrated that the costs of reserve staffing to cover the purported increase of flight delays due to increased Flight Attendant sick leave activity would result in an approximate increase in Flight Attendant costs of no more than $3.2 million a year for all A4A carriers combined. This estimate was based on Dr. Lee's own statistical results of a purported 1 to 2% increases in flight crew caused delays, and was calculated using prevailing A4A Flight Attendant wage and benefit costs at each carrier, as well as an estimate of the potential for increasing existing reserve staffing pools by as many as 36 new hire Flight Attendants. If the airlines decided the pass these costs directly to passengers, the impact on fares, based on potential increased staffing cost, was between **6 and 25 cents** per passenger. This nominal cost is not enough to have a meaningful impact on passenger fares, nor routes and service.

12. Dr. Lee argues that I have underestimated these costs. He estimates the cost to *partially* offsets his purported 1% to 2% increase of short staffed flights in Boston is approximately $27.2 million a year, based on his estimated need to hire a minimum of 306 Flight Attendants.[28] While his estimate is inflated for reasons explained below, for sake of following his argument, if one assumes Dr. Lee's estimated cost of $27.2 million to partially

[28] Lee Rebuttal Report op. cit., ¶ 63.

cover the increased staffing needs due to ESTL in Boston and this cost was passed on to passengers, it would result in an implied cost increase per Boston passenger of $1.59 a ticket, as he states. [29] Immediately after Dr. Lee makes this claim he states the following *"[i]t is well understood that the demand for air travel is highly sensitive to price changes, and therefore, higher fares due to the increases in costs will reduce the demand for air travel and with lower demand, airlines will be able to offer less capacity and services to Massachusetts'.*[30] It is curious that after getting to this heart of the matter Dr. Lee did not take the logical next step of providing any sense of the relative impact of this cost increase on passenger fares, routes or services at Boston. The omitted conclusion is that even Dr. Lee's inflated estimate of $1.59 per passenger would increase the average passenger fare in Boston by only *0.5%* (at an average ticket price of $334).[31] This is hardly enough to cause the level of cataclysmic damage to airline services Dr. Lee portends. If an increase of this size had a meaningful impact on passenger demand, at a level affecting airline routes and services, I assume Dr. Lee would have attempted to demonstrate it.

13. Putting aside the limited relative impact on fares resulting from his cost estimate, Dr. Lee's estimate is grossly overstated for the following reasons:

1. **Carrier Set Expansion**- Dr. Lee decided to greatly expand the base of his cost estimate by more than doubling the number of carriers in his analysis, from five A4A

[29] Lee Rebuttal Report, op. cit., ¶ 64.
[30] Lee Rebuttal Report, op. cit. ¶ 64.
[31] Lee Rebuttal Report, op. cit. ¶ 63, Akins Rebuttal Report, op. cit., ¶ 30.

carriers to 13 carriers, adding eight other airlines with as few as a single flight per day at Boston.

2. **No Crew Base in BOS** - The majority of carriers in his analysis do not have Flight Attendant crew bases in Boston, therefore are not subject to ESTL compliance, and have no reserve staffing capabilities in Boston.
3. **Excess Staffing** -Dr. Lee errantly applies an unnecessarily high reserve staffing ratio to inflate costs by assuming each A4A carrier must hire between 24 to 30 Flight Attendants to cover airlines having purported increased delays for as few as *0.6 to 1.2 flight per week.*[32]
4. **A4A Cost Application** - Dr. Lee applies Flight Attendant payroll costs to his greatly expanded carrier set that are based on A4A Flight Attendant pay scales which are approximately 30% higher than the average of the regional and low cost carriers in his expanded pool of non-A4A carriers (with the exception of Delta).[33]
5. **Average vs. New Hire Costs -** Finally, to estimate the cost of each new reserve Flight Attendant Dr. Lee chose to apply the much higher payroll costs of an *average* A4A Flight Attendant, which is more than twice as high as the payroll costs for *new hire* Flight Attendants that would logically be used to fill increased staffing needs.[34]
6. **Summary** - Dr. Lee's cost estimate is grossly overstated. It is based on the purposeful combination of a greatly expanded set of non-A4A carriers, staffed by an exaggerated number of reserves, whom he assumes are not new hires, at higher

[32] See Alaska example in Appendix B., below
[33] Carrier entry level Flight Attendant pay.
[34] See, Akins Rebuttal Report, ¶ 39, Table 1. A4A average estimated new hire costs $43,361 vs Average A4A Flight Attendant costs of $88,280.

than actual costs, for carriers with no Boston crew base and, therefore, not subject to ESTL for these non-existent reserve flight attendants.[35] Dr. lee does not demonstrate a meaningful impact on carrier prices, routes, or services, in fact he highlights the opposite.[36]

B. Dr. Lee's Attempt to Increase the Practical Impact of His Statistical Results Through Sheer Mathematical Chicanery Should Be Rejected

14. In paragraph 38 of his Rebuttal Report Dr. Lee attempts to artificially inflate the impression of the practical significance of his regression results through mathematical chicanery. His efforts do not change the number of flights that are subject to delay, despite the contrived higher percentage he calculates in his Rebuttal Report.[37] Dr. Lee states, *"[e]xhibit 7 below demonstrates that a one-point increase in controllable delays would increase the number of such delays by 11.6%"*.[38] But let's be clear, the claim he makes is that a 1% increase in carrier-caused delays would result in an increase in the share of carrier-caused delays of 11.6%. The only reason to focus on this sub-category is the higher percentage and it's significance could be easily misconstrued by the reader. As shown by his use of the word "*such*" in his sentence above, the 11.6% increase is in the share of those flights that are *already affected* by carrier-caused ("controllable") delays. While it is true that 1% of all flights represents 11.6% of

[35] See Appendix B for detailed explanation.
[36] *Ibid.*
[37] In his Rebuttal Report, at paragraph 38, Dr. Lee writes, "*[s]pecifically, Mr. Akins argues that a one percentage point increase in delays in Boston would translate into a total of approximately 3 to 6 flights a day in total for all A4A passenger carriers combined'.* This is a misstatement of my testimony which involves restating his own regression results of suggesting a *1 to 2% increase in flight delays* which could affect between 3 to 6 flights a day for all a4A carriers at Boston. This is clearly stated and derived in my Rebuttal Report at paragraph 82, which is cited by Dr. Lee in reference to his paragraph 38. This is a small but important distinction which, unless corrected, distorts the basis of my analysis as it potentially doubles the practical impact of a 1% increase in cabin crew related delays on the number of flights potentially affected by such delays.
[38] Lee Rebuttal Report, op. cit., ¶ 38.

the much smaller number of flights already affected by carrier-caused delays, the potential practical impact is on the same three flights per day (at pre-pandemic levels).

15. To compound the issue, in the footnote associated with paragraph 38, Dr. Lee further explains his calculation,"*[a] one percentage point increase in controllable delays would be in a 11.6 percent increase (i.e. 1% ÷ 8.6% = 11.6%)".*[39] But here again he fails to complete the sentence and provide proper context to what is being calculated-- "*a 11.6 percent increase - "of flights experiencing air carrier-caused delays*", and not on *total* flights, which could be an inference by leaving the sentence open ended.

16. Dr. Lee's attempt to inflate the percentage share of flights impacted by ESTL by changing the basis on which the share is based (from all flights at 1% to the proportion of carrier caused delays at 11.6%) does not change practical significance of his regression results as the number of flight delays at Boston remains the same three flights for all A4A carrier combined. As shown in paragraph 28 of this Report, the pandemic related drop in overall flight volumes of approximately 64% at Boston has greatly diminished the practical impact of a purported 1% increase in delays to approximately one flight a day for all A4A carriers combined.[40]

[39] Lee Rebuttal Report, op. cit., ¶ 38.

[40] Flight volume at Boston Logan airport is down 64% from last year from latest available data from September 2020. Source: Massport, Boston-Logan International Airport, "Monthly Airport Traffic Summary – September 2020". If this drop in flight volume is applied to adjust the pre-pandemic level of combined A4A carrier total flights of approximately 300 a day, flight volumes would drop to approximately 108 flights a day for A4A carriers combined. Thus a 1% to 2% increase in flight delays would cause 1 to 2 flights a day being affected. It is uncertain if and when A4A carrier operations at Boston get back to pre-pandemic flight levels as networks are restructured. Until then the practical impact of a 1 to 2% potential increase in flight delays will impact far fewer flights.

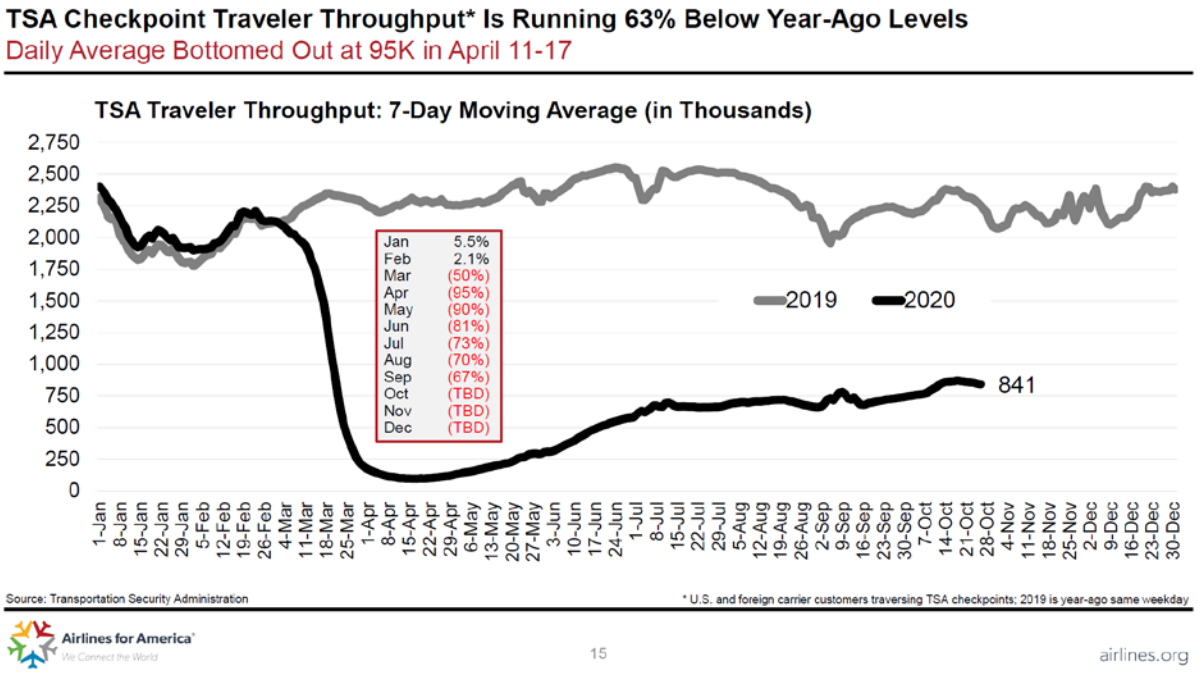
V. Impact of The Pandemic on Airline Operations and Airline Employees

A. The Long-term Impact of the Pandemic Is Causing Dramatic Changes to the Size and Structure of Air Carrier Operations and Change the Basis of Purported ESTL Impacts

17. The pandemic has caused dramatic long-term debilitating changes in the airline industry which require a revised assessment of the benefits, burdens and impacts of ESTL. A smaller footprint of service results in reducing any purported impact of ESTL on air carrier operations. While the unprecedented impact of the coronavirus is hopefully a short-term one, the timing and likelihood of the airline industry returning to its pre-coronavirus structure and operational volume remains uncertain. According to the latest industry forecasts, it is now expected to take years to recover, and not likely to the level or structure of the pre-pandemic industry. Many carriers have recently failed, and many more are expected to fail or severely contract operations due to the impact of the pandemic. Leading industry analysts predict high-yield business and international traffic will remain depressed for the foreseeable future, as virtual options to in-person meetings have become popular alternatives to travel.[41] Other sources predict the timeline for airline recovery to take between 4 to 8 years.[42] Considering the combined impact of the pandemic coupled with a follow-on global economic recession, one industry analyst claims, "*it could conceivably take until 2028*" for the industry to recover.[43] As shown below in Graph 1 is A4A's depiction reported TSA checkpoint throughput at US Airports, which in 2020 remains down by 63% from 2019 levels after nearly 8 months since the outbreak.[44]

[41] CNN,*"5 Ways Covid-19 will challenge airlines for years*", Oliver Wyman, August 13, 2020.
[42] The Street, Mish Talk, September 10, 2020.
[43] Leeham News, July 13, 2020.
[44] A4A, Tracking the Impacts of COVID-19, Updated October 27, 2020

Graph 1



18. The unprecedented evaporation of passenger demand due to the pandemic has caused a dramatic reduction in airline jobs and carrier operations, and many changes may be durable or permanent. As shown in Graph 1 above, the initial impact of the coronavirus on the US airline industry surfaced in March 2020 and was swift and severe, with traffic dropping by 95% by April.[45] While US airline traffic has rebounded somewhat since late spring, demand continues to be approximately 60% below 2019 levels on the best of days, and many countries have stopped international visitors, including from the US.[46] This drop in passenger demand resulted in sudden employee overstaffing as operations collapsed and aircraft were parked, causing the hours of available work to fall and scores of airline employees to

[45] TSA daily checkpoint volumes.

[46] *Ibid.*, as of October 2020.

become immediately redundant. In response, tens of thousands of airline employees have volunteered for leaves and early retirements to reduce overstaffing and to avoid involuntary furloughs.[47] Additionally, in an effort to distribute the greatly reduced work hours available amongst the remaining workforce, employees began to share the available work time through job sharing programs and reduced work schedules.[48]

19. Job saving alternatives to furloughs required time to develop and put in place. These programs were only accomplished due to the six month-long financial support and job guarantee provided to airline employees by Congress through the CARES Act, Payroll Support Program ("PSP"). This support program ended September 30, 2020 and marked the end of the job protections and payroll protection for all airline employees. Efforts to extend the PSP program have thus far failed. As a result, tens of thousands of airline employees have been furloughed while airlines adjust to the new environment where there is not enough demand to support the pre-pandemic levels of staffing. The impact on airline employees is likely a years-long struggle as jobs will disappear with not enough demand to support pre-pandemic levels of employment. Despite these efforts, tens of thousands of airline employees are now facing furloughs for a period of unknown length, or perhaps permanently.[49]

20. The pandemic is causing a reassessment of airline operations, passenger demographics and networks. Delta's CEO Ed Bastian recently stated, "*I have said many times myself, not only is it going take two to three years, but this industry will be smaller, when we get*

[47] CNBC, "*United Airlines plan to cut more than 16,000 jobs as coronavirus continues to hammer demand*", September 2, 2020.
[48] Noraj Chokshi,"*Pandemic Convinces Airline Workers It's Time for New Horizons*" New York Times, September 30, 2020.
[49] CNN Business, op. cit.

there to that new level of normal. I think there is a portion of business travel that is inefficient today and probably will not come back".[50] Delta is also pulling service and changing its network, preparing for a much smaller operation post pandemic and is focusing service to its prime hub markets.[51] American announced they are pulling down service at 15 cities from their network, which do not include cities served non-stop from Boston.[52]

21. The pre-coronavirus world, which for the US airline industry is the time prior to March 2020, is a period in which all the evidence and considerations in this case were based. The unprecedented economic and health security impacts wrought by the coronavirus on the airline industry has dramatically changed the immediate and longer-term trajectory of operations at Boston Logan, affecting all carriers and their employees across the globe. As I demonstrate below, the dramatic changes in air carrier operations due to the impact of the pandemic has not only dramatically reduced flight volumes, but also the shares of those flights which are delayed.

Risk of COVID-19 for Airline Employees

22. Despite most airlines' recent efforts to assure the public that contact surfaces are sanitized and air circulating in the cabins of aircraft is "safe" for the health of those aboard, findings from a new study titled "*In-Flight Transmission of Severe Acute Respiratory Syndrome Coronavirus*", suggests otherwise.[53] The results of the study in the November 2020

[50] CNN July 10, 2020, *https://www.cnn.com/videos/business/2020/07/10/delta-ceo-ed-bastian-airline-industry.cnnbusiness*

[51] Delta News Hub July 15, 2020, *https://news.delta.com/delta-adjust-service-smaller-underperforming-markets*

[52] Flight Global, "American cuts 15 cities from network as government aid expires" August 20, 2020

[53] For example, Delta Airlines CareStandard, https://www.delta.com/us/en/travel-update-center/ways-we-are-keeping-you-safe/setting-the-standard-for-safer-travel ,and United CLeanPlus, https://www.united.com/ual/en/us/fly/travel/what-to-expect.html

edition of the CDC's Journal of Emerging Infectious Disease found that passengers can and have transmitted COVID-19 (SARS-COV-2) aboard aircraft to flight crew members.[54] The report states, "*[g]iven the case histories and sequencing results, the most likely sequence of events is that one or both of passengers A and B contracted SARS-CoV-2 in North America and transmitted the virus to flight attendants C and D during the flight",* and concluded "*[o]ur results demonstrate that SARS-CoV-2 can be transmitted on airplanes*". [55]

23. Supporting this finding are airline management reports that a large number of employees have contracted COVID-19 and dozens have died from it. In June, Delta reported that ten of its employees had died from COVID-19, while approximately 500 more had contracted the disease.[56] JetBlue CEO Robin Hayes, reported in May that "[*w]e have lost six crew members to COVID-19 related illness".*[57]

24. However, some airlines, for example Southwest Airlines, have announced they are cutting back on cabin sanitization to reduce time devoted to cleaning. In March, SWA rolled out an enhanced cleaning program that included "*interior windows and shades, every seat belt buckle, passenger service units (including the touch buttons that control reading lights and vents that direct personal air), as well as seat surfaces, tray tables, [and] armrests*." [58] In August, the company announced it was cutting back extensive cabin sanitization procedures to speed up turn-around times, potentially placing passengers and crew at heightened infection risk.[59]

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[54] U.S. Centers for Disease Control and Prevention, Journal of Emerging Infectious Disease, "In-*Flight Transmission of Severe Acute Respiratory Syndrome Coronavirus 2*", Volume 26, Number 11 – November 2020.
[55] *Ibid*.
[56] Atlanta Journal Constitution, "*Delta Says 500 employees tested positive for COVID-19*", June 19, 2020.
[57] Associated Press, "Insider: JetBlue CEO discusses COID-19's impact on airlines", May 31, 2020
[58] CNN "Southwest Airlines cuts back on Covid-19 cleanings to speed up flight turn arounds", August 5, 2020.
[59] *Ibid.*

B. Dr. Lee's Consideration of The Pandemic Ignores Larger Strategic Issues

25. In the initial section of his Rebuttal Report ,Dr. Lee devotes little to the impact of the pandemic on employees and highlights anecdotal evidence that a some airlines are providing the access to extended time off to quarantine against spread of COVID-19.[60] Unfortunately, some COVID-related employee programs are limited.[61] Undoubtedly, the coronavirus pandemic has shined the brightest light possible on the critical need for airline employees to have unfettered (i.e., discipline free) access to paid sick leave. The public health benefits of keeping sick or potentially virus-exposed airline employees away from the workplace during the pandemic are overwhelming and obvious.. And it is also in the interest of all airlines and their employees to provide the public with the highest provision of cleanliness of aircraft cabins to ensure the perceived health safety of flying to get passengers back aboard aircraft again.

26. The federal government has declined to establish any uniform recommendation or formal requirement aimed at the spread of the coronavirus aboard aircraft, including mask wearing, social distancing or other protocols aboard aircraft. Instead, each airline has been left to develop health safety initiatives and have, over time, established their own individual recommendations and requirements without regulatory support. The perception of the potential for passengers to be aboard aircraft with potentially sick cabin crew also bolsters the importance of providing discipline-free sick leave to airline employees, which can also be used as part of a concerted campaign to attract back customers.

[60] Lee Rebuttal Report, op. cit., ¶ 9.
[61] Southwest pandemic leaves program limits employees to one 14-day quarantine period, See, 8. Southwest Airlines Guidelines for Employees, IDP Section 5.7, Infectious Disease Control Policy Revised 3/11/20.

C. A Change in Demand for Employees Changes Assumptions

27. The impact of coronavirus on U.S commercial aviation is worse than the combined impacts of the terror attacks of 9/11, the global financial crisis of 2008/09, as well as all other exogenous events combined. There has never been a period in the tumultuous history of the airline industry during which passenger traffic dropped mover than 90%. Traffic is forecast to continue at depressed levels for years to come. This dramatic change requires a fundamental reassessment of analysis and results based entirely on pre-pandemic industry operating levels and employment. More fundamentally, the upheaval in airline operations, which includes unprecedented long-term changes to routes, services, and fares, changes the dynamics of Dr. Lee's analysis, and overwhelm the basis of his speculative conclusions of the impact ESTL has on the industry. These changes, when coupled to the shrinking base of available work for employees, have created an oversupply of workers for the jobs available and a hunger to find hours of employment which likely changes behavior. The sudden change in the airline labor market should not incentivize employees to work while sick, infected or exposed to coronavirus. ESTL guaranteed access to discipline-free paid sick leave helps employees make the right decision to stay away from work when ill or exposed.

D. Airline Employees are Hungry for Work

28. Based on the pandemic-induced reduction in passenger demand, the amount of available work is not enough to keep all pre-pandemic employees in their jobs. As a result of this sudden overstaffing, tens of thousands of employees have been involuntarily furloughed, or have taken voluntary unpaid or partial paid leaves or have accepted early out programs. This imbalance, caused by a severe lack of available work time for airline employees

to earn a living, has created a desperation for paid work that fundamentally changes the behavioral basis of the argument expressed by Dr. Lee regarding employee abuse of sick leave. Thus, even if it were previously true that sick-time abuse is endemic in the airline industry (a contention my experience tells me is inaccurate), such a statement is no longer an accurate reflection of the labor market.

E. Shrinking Flight Volume Reduces Dr. Lee's Claimed Impact of ESTL

29. It is critical to note that the basis of Dr. Lees' exaggerated claims regarding the impact of flight delays at Boston caused by crew related sick leave use is based on the results of his regression analysis indicating a 1 to 2% increase of the flight delay, affecting 3 to 6 flights a day.[62] As I discussed in my Rebuttal Report, this marginal increase of 1 to 2% is practically insignificant on its own, and even less impactful considering the highly variable range of the share of flights which are subject to existing delays.[63] The number of flights affected by delays is ultimately based not on the share of flights, but also the volume of flights. Diminished flight volumes and other operational changes volumes would decrease the volume of impacted to 1 or 2 for A4A carriers combined.[64] The data in Table 1 below highlights the sudden and deepening drop in flight volume and passenger traffic at Boson Logan, with latest data showing a disturbing reversal of improving flight volumes.

[62] Lee Initial Report Exhibit 18 and paragraphs 66 and 72.
[63] See, Akins Rebuttal Report, op. cit., Section VIII.
[64] 1 to 2 % of 108 combined A4A flights = 1 to 2 delayed flights a day, based on -64% of 300 pre-pandemic flights operated by A4A carriers combined.

Table 1

Monthly Flight and Passenger Volume
All Airlines - Boston Logan 2020

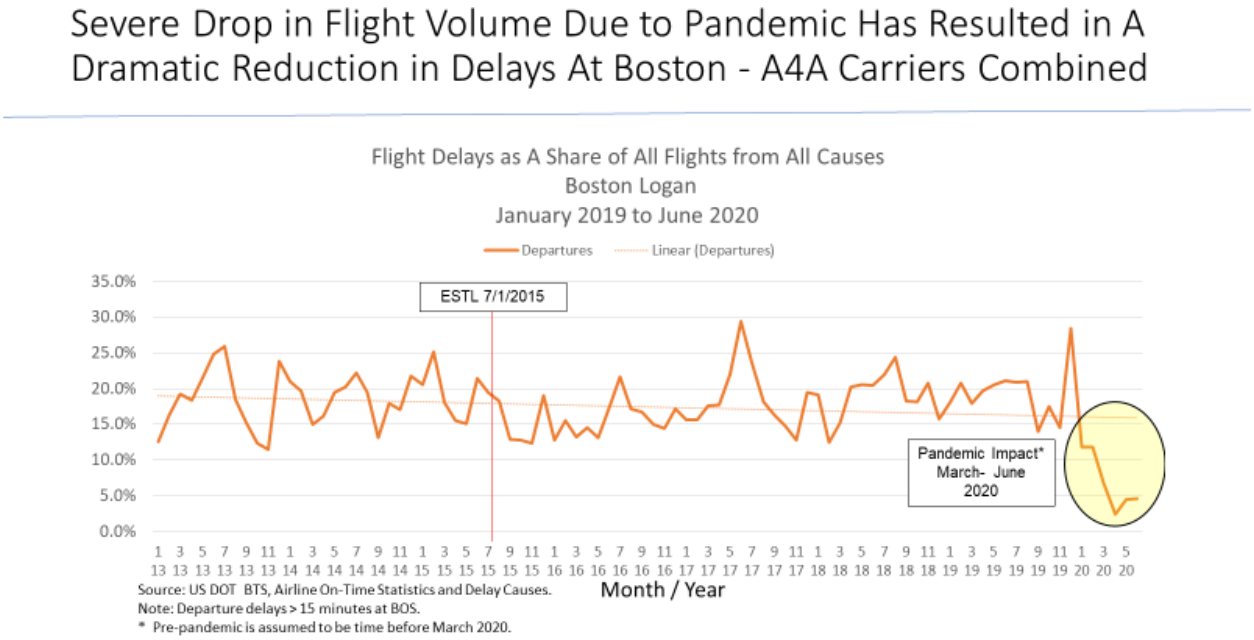
	Flights			Passengers			Passengers per Fight		
Month	2020	2019	%	2020	2019	%	2020	2019	%
Jan	33,001	30,330	9%	2,940,985	2,710,036	9%	89.12	89.35	0%
Feb	31,635	28,975	9%	2,890,513	2,716,724	6%	91.37	93.76	-3%
Mar	28,682	34,350	-17%	1,634,101	3,457,362	-53%	56.97	100.65	-43%
Apr	7,938	35,952	-78%	95,352	3,646,839	-97%	12.01	101.44	-88%
May	7,455	37,991	-80%	203,328	3,878,899	-95%	27.27	102.10	-73%
Jun	10,361	37,483	-72%	438,266	3,946,093	-89%	42.30	105.28	-60%
Jul	16,140	38,627	-58%	738,135	4,072,082	-82%	45.73	105.42	-57%
Aug	15,582	40,075	-61%	700,765	4,120,937	-83%	44.97	102.83	-56%
Sep	13,469	37,334	-64%	632,893	3,547,546	-82%	46.99	95.02	-51%
Total	164,263	321,117	-49%	10,274,338	32,096,518	-68%	62.55	99.95	-37%
Arriving and Departing				Enplaned and Deplaned			Arriving and Departing		

Source: Massport

F. Lower Flight Volumes Have Greatly Reduced Share of Flights Experiencing Delays

30. As is shown in Table 1, the latest data from Massport indicate overall flight volume at Boston is down 64% from 2019 due to coronavirus. One positive aspect of lower flight volumes is a much lower share of them are delayed. As shown in Graph 2 below, the share of A4A flights with delays have been greatly reduced at Boston, falling from a pre-pandemic monthly average of 18% to 4.6% after March 2020. This lower flight delay share is likely volume related, but a sign that the pandemic has changed the parameters of this and other analyses based on pre-pandemic data sets.

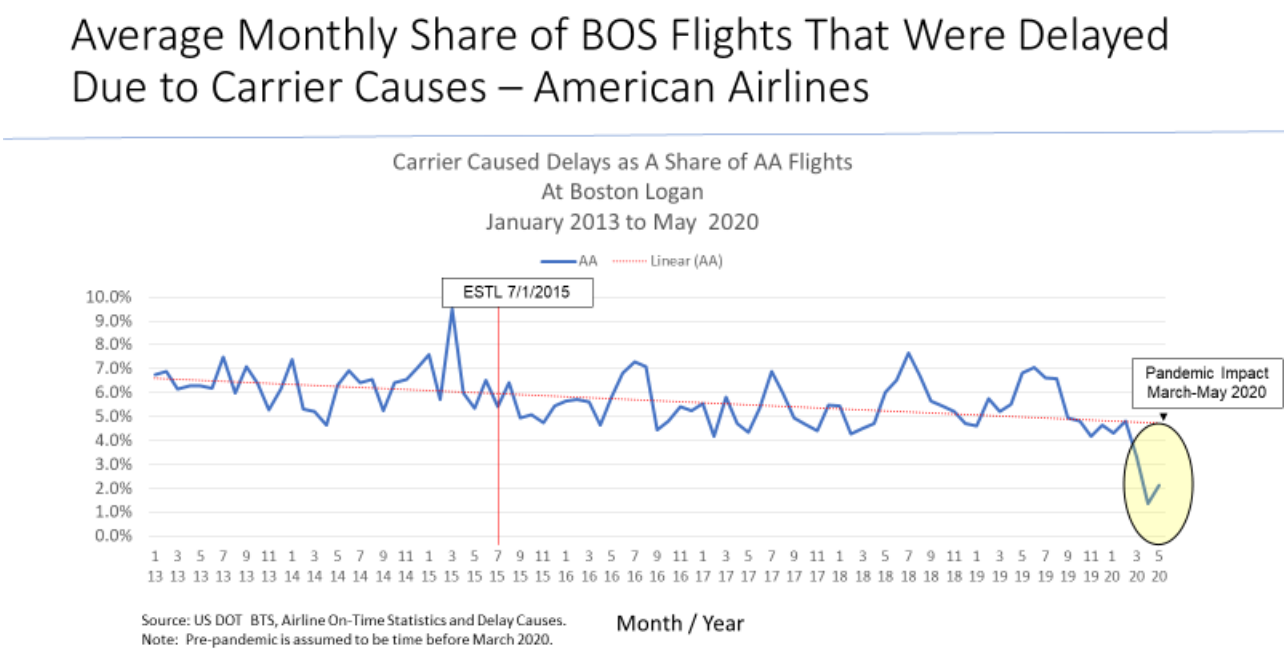
Graph 2.



31. Perhaps more interesting to note is a pronounced decline in carrier-caused delays, which includes crew-related delays. This dynamic is shown in the American Airlines example depicted below in Graph 3, below. As is evident, pre-pandemic carrier-caused delay rates at Boston were trending down from approximately 7% to 5% in the pre-pandemic period, but then suddenly dropped to between 1 and 2% after the pandemic began. The drop in carrier-caused delay again portends the pandemic-related changes which may be long term and serve to challenge the efficacy of analysis culled from pre-pandemic times, included in Dr. Lee's analysis.[65]

[65] For example ,see footnote 105, Lee Rebuttal Report*," Moreover, delays impose a significant cost on the U.S. economy as a whole, with the U.S. Government Accountability Office ("GAO") noting that in 2007 "domestic flight delays … cost the U.S. economy as much as $41 billion and raised airlines' operating costs by $19 billion." See "Commercial Aviation: Impact of Airline Crew Scheduling on Delays and Cancellations of Commercial Flights," GAO Letter to Senator Stevens, September 17, 2008.*

Graph 3



VI. Benefits of the Massachusetts Earned Sick Time Law to the Traveling Public, Airline Employees and Their Passengers

A. Value of Paid Employee Sick Leave During A Pandemic

32. Perhaps there has been no greater time to demonstrate the need for protections afforded by the Massachusetts earned sick time law to ensure each airline employee's unfettered access to paid sick leave, without ramifications. Although demand is limping back to approximately 60% of normal, airlines have seen demand drop by as much as 95% earlier in 2020.[66] While Official data sources are not readily available, it appears that several thousand airline employees have been infected and dozens have died of COVID-19. In the unfortunate regulatory vacuum created by the lack of a federal mandate requiring masks aboard

[66] TSA Checkpoint Travel numbers for 2020 and 2019.

flights, most carriers have made masks aboard flights mandatory or recommended. These carrier- based mask efforts vary widely without a federal mandate and passenger compliance is varied, causing the head of the largest Flight Attendant union to state, *"[t]his is putting not only our lives but also our jobs at risk. It's incredibly frustrating"*.[67]

33. Fear of flying due to health safety concerns continues to be a factor in travel decisions.[68] A major factor in addressing public safety concerns of air travel is ensuring that employees who are ill or exposed to the virus have adequate access to paid sick time. The guaranteed access to airline employee sick leave under ESTL during a pandemic cannot be understated and is a critical component to ensure a safe environment for airline passengers and other airline workers, and a way for airlines to recapture passenger demand. Despite the sporadic initiatives that many airlines have had to independently develop to provide emergency access to leaves for employees who have exposure or contracted the virus, these programs are not universal, contractually binding and can be changed or terminated at any time by the airline. For example, from what I learned from employee infectious disease protocols, these programs can be limited to a one-time single period of 14-day quarantine that does not allow for a secondary quarantine period if an employee has subsequent exposure.[69]

34. These facts show that the weighing of the cost/benefit value of ESTL to public welfare in a pandemic versus the potential marginal increase in airline costs and operational delay weighs in ESTL's favor.

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[67] Wall Street Journal, "Airlines have rules about face masks – They are not enough", October 21,2020

[68] *Ibid., "[p]ublic wariness of mask compliance may be depressing ticket sales, leaving more flight attendants on furlough, she notes. Concerns that people seated nearby may be unmasked is one of many reasons so many customers are avoiding travel."*

[69] Southwest Airlines, Guidelines for Employees, IDP Section 5.7, Infectious Disease Control Policy Revised 3/11/20. And Letter of Agreement (LOA) concerning Flight Attendants affected by a CDC-required quarantine for Coronavirus, March 20, 2020, allows employees to take paid leave for a single period not to exceed one continuous 14-day COVID related quarantine period.

VII. Dr. Lee Has Not Proven the ESTL Will Have any Material Impact on Airline Routes, Services and Fares

35. Despite the hundreds of pages of data analysis and claims made by Dr. Lee in this case and other similar cases elsewhere to support A4A's attempt to prevent paid employee sick leave laws from applying to airlines, Dr. Lee has presented no credible reason to believe that the application of ESTL to airlines serving Massachusetts will have the negative impacts he claims. In fact, given the current health crisis it would seem the merits of ESTL protections applying to airline employees, and through inference, the traveling public would be more obvious. Without the ESTL, airline employees feeling unwell could be incentivized to show up for work when not feeling well to avoid disciplinary measures.

36. Throughout his Initial Expert Report and again in his Rebuttal Report, Dr. Lee attempts to assert all of the supposed calamitous large-scale impacts that would supposedly wreak havoc on the airline business and its customers. These assertions are based on extrapolating the results of his pre-pandemic based statistical analysis, but also through examples which he claims represent ESTL-related impacts. None of these are credible and should be rejected.

A. Virgin America - A Red Herring Dr. Lee Should Abandon

37. Dr. Lee's continued and persistent claims regarding the applicability of the experience of Virgin America in New York to portend the likely experience of carriers operating at Boston under the ESTL should be disregarded as a red herring. Dr. Lee cannot simply ignore the circumstances that were wholly unique to Virgin and described in detail in my Rebuttal

Report, as well as the lack of example(s) from Massachusetts or other states with EST laws which would support his contentions regarding Virgin's experience in NYC. Dr. Lee should abandon his attachment to Virgin as a representative example of the impact of carrier compliance and recognize it for what it is—an outlier. Nonetheless, he continues to assert the viability of his example as demonstrated in paragraph 3 of his Rebuttal Report where Dr. Lee again touts the Virgin America experience by claiming, "*I also showed, by way of example, how the dramatic increase in sick leave use by Virgin America flight attendants that occurred after Virgin America changed its sick leave policy in response to the New York City Earned Sick Time Act ("ESTA") contributed to the closure of Virgin America's JFK flight attendant base in 2018".*[70] I would simply reestablish that despite Dr. Lee's repeated claims using Virgin America as a harbinger of ESTL impacts, the practical reality remains he has not demonstrated that any of these maladies have occurred to any carrier under ESTL at Boston.

38. As I stated in my Rebuttal Report, *"[a]ccording to Dr. Lee's analysis, during the first two years post-compliance Virgin's cabin crew delays increased by an imperceptible 0.16 percentage points, and only by 1.2 percentage points in his segmented seven month period in 2017 which contained obvious outliers".*[71] Despite all of the exuberance around this example extolled by Dr. Lee in this case and others, as representative of the harm of paid sick leave programs such as ESTL, it is in fact a red herring, with sick leave use changes due to other more obvious factor, as I discussed at length in my Rebuttal Report.[72]

39. Finally, to illustrate Dr. Lee's apparent lack of understanding of the

[70] Lee Rebuttal Report, op. cit., ¶ 3.
[71] Akins Rebuttal Report, op. cit.,¶ 128.
[72] See Akins Rebuttal Report, ¶ 116, Section D "*The Impact of Virgin's Compliance with ESTA on Cabin Crew Related Delays*".

potential motivation of Virgin America Flight Attendants in not welcoming the purchase of their airline by Alaska Air Group as a factor contributing to the 2017 spike in sick leave use, Dr. Lee states, "*Virgin America flight attendants had every reason to champion the merger given that they all would receive significant compensation increases, not one flight attendant would be furloughed, and each flight attendant would be integrated into Alaska's workforce in a way that would preserve their seniority".*[73] Dr. Lee seems to not understand the way seniority integration works and the real impacts mergers have on employees lives. For example, at the time of the merger in 2017, the most senior Virgin America Flight Attendants had ten years of service at most, yet had the ability to select the best, highest paying flight schedules their carrier had to offer. When those senior Virgin America Flight Attendants moved to Alaska they were integrated based on their Date-of-Hire with a much more senior workforce at Alaska. As a result, even those besides the most senior Virgin Flight Attendants knew they would lose their *relative* seniority and bidding power when they were integrated into the more senior Alaska list. This is a major contributing factor that would impact all Virgin America Flight Attendant's reaction to the merger, something Dr. Lee apparently does not understand or chose to ignore. This loss of seniority and bidding power, coupled with the announced closure of Virgin America's New York crew base, is most likely what caused the spike in sick leave use among Virgin America's New York based Flight Attendants in late 2017, rather than the two-year delayed reaction to NYC's paid sick leave law, that Dr. Lee would have us believe is a harbinger of things to come in Boston under ESTL.[74] Of note, Virgin's crew related delays also spiked in 2016/2017 at SFO and LAX.[75]

[73] Lee Rebuttal Report, ¶ 74.

[74] ESTL hasn't had that effect in Boston or Dr. Lee would likely have cited the data directly, especially for American Airlines, which applies ESTL t its Boston based flight attendants.

75. See, Akins Rebuttal Report, op. cit,, ¶123, Graphs 36 and 37, data suggest Alaska merger impact was systemwide, not just at NYC.

VIII. Federal District Court in Washington State Case Rejected Dr. Lee's Similar Arguments

40. Dr. Lee includes as an addendum to his Rebuttal Report filed in this case a copy of the Rebuttal Report he filed in the Washington State Paid Sick Leave Law ("WSPLL"), in which he makes most of the same arguments in an attempt to establish similar claims made in subsequent employee paid sick leave related cases in New York and Massachusetts.[76] I find the court's decision regarding WSPLL relevant, especially since Dr. Lee included his Rebuttal Report from that case with his Rebuttal Report in this case, and also because he claims Defendant's experts in this case merely recycled rebuttals from that case.[77] In the WPSLL case, Dr. Lee focused on his regression analysis and the example of Virgin America's experience in NYC. He claimed that the paid sick leave law in Washington State would result in an increase in sick leave use and abuse, creating a burden on the interstate movement of goods and people by increasing flight delays and cancellations. The court disagreed finding *no* evidence that compliance with the law would result in increased flight delays or cancellations. The court reasoned that the WPSLL does not have a "*significant impact*" on airline routes, prices, or services, and that the effects of the sick leave law were "*too far removed*" from the point of sale for preemption under the Act.[78] The entire consideration of the purported practical impact of ESTL on air carrier operations based on the results of Dr. Lee's statistical analysis could be viewed as an academic exercise that is not based on fact or accepted as solid evidence, given the multitude of problems in Dr. Lee's statistical analysis demonstrated in

[76] See, Expert Report of Dr. Darin N. Lee, Ph.D. A4A vs The Washington Department of Labor & Industries, et. al. United States District Court for the Western District of Washington at Tacoma, Case No.3:18-cv-05092-RBL.
[77] Ibid., Lee Rebuttal Report, ¶ 69 Titled "*Mr. Tregillis's and Mr. Akins's Belabored and Mostly Recycled Rebuttals to My Analysis of Virgin America's Full Compliance with ESTA Fail*"
[78] Ibid.

section 2.3.2 and generally in the Expert Rebuttal Report of Mr. Christian Tregillis.[79]

41. The decision by the federal court in Washington State also rejected Dr. Lee's principal claims of preemption and downline impacts of employee paid sick leave laws on airline operations. As reported, *"[o]n October 11, 2019, a federal judge for the U.S. District Court for the Western District of Washington ruled that Washington state's paid sick leave law does not violate the Constitution or federal preemption law, thereby guaranteeing sick leave benefits for airline flight crew employees based in Washington*."[80] The court found further that the health and safety benefits of the WPSLL outweighed any claimed impact on interstate commerce, citing to *"the heightened potential for spreading disease on crowded airplanes[.]" The court concluded, "[w]eighing these benefits against the limited burden on interstate commerce, WPSLL does not violate the Dormant Commerce Clause."*[81]

IX. Employers Retain Their Ability to Discipline Employees that Abuse ESTL Leave

42. Although Dr. Lee attempts to highlight patterns of alleged sick leave abuse through use of various charts and graphs in his Rebuttal Report, he also challenges the ability of employers to impose discipline on employees who demonstrate a pattern of abuse of paid sick time, primarily because predictable patterns are difficult to identify.[82] This argument is a non-starter-- employers could use sick leave patterns identified by Dr. Lee and by their own sophisticated internal monitoring systems to determine potential abuse and impart discipline.

[79] Expert Rebuttal Report of Christian Tregillis, CPA, ABV, CFF, CLP, December 27, 2019.
[80] Ford Harrison. US Laboris USA Global HR Lawyers, "*U.S. District Court Rules in Favor of Airline Flight Crew Employees on Paid Sick Leave Challenge*", October 18, 2018.
[81] *Ibid.*
[82] Lee Rebuttal Report, op. cit. ¶ 20.

X. Dr. Lee Wrongly Asserts that the Potential Impact of ESTL Will be Amplified as a Result of the Global Pandemic, When in Fact the Opposite is True

43. In paragraph 66 Dr Lee states, "*[i]n this extreme environment, where the return to more normal (albeit likely lower) levels of demand is largely tied to a vaccine becoming widely available,*[187] *the practical significance of compliance with the Law is amplified. Indeed, because carriers are struggling to draw customers back to the skies, they simply are not in a position to pass on new costs to passengers. As a result, the increased costs described above will instead most likely lead to reductions in routes and services."*[83] I agree that the pandemic and economic recession have lowered demand, and that the airline industry will be smaller for the foreseeable future as a result. However, I do not agree that purported impact of ESTL on airline services will be amplified as a result, as the lower level of operation and focus on the most robust markets, which includes Boston, in their networks, will reduce any purported marginal practical impact of ESTL on airlines routes and services. Airlines are now focusing their post-pandemic network plans on the strongest routes and services from the larger set of routes and service from their pre-pandemic levels of operation. This change, as well as the lower operating volume will cause fewer fights from being impacted, reducing any estimated pre-pandemic impact of ESTL Dr. Lee asserts. Any costs associated with ESTL compliance are not independent of the level of operations, and in fact are dependent on it. Applying his statistical result of a 1% - 2% increase in cabin crew related flight delays is relative to the number of flights operated, a lower volume means a potential of 1 to 2 flight delays per day and delay volumes which will reduce the purported potential impact of ESTL.

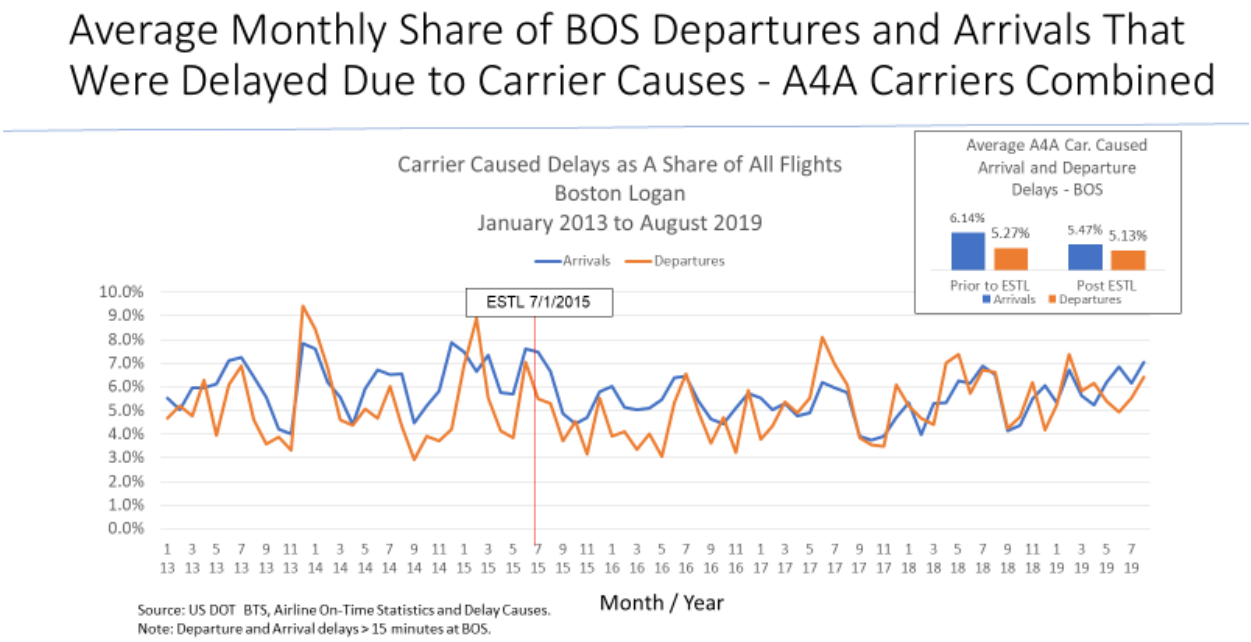
[83] Lee Rebuttal Report, op. cit. ¶ 64.

XI. Dr. Lee's False Correction to Delay Measurement Can Not Hide Trends in Departure Delays That Undermine His Claims

44. In paragraph 67 of his Rebuttal Report Dr. Lee contends that the use of arrival delays at Boston does not adequately address the impacts of carrier caused delays which he contends are best measured through departure delays. As shown in Graph 4 below, the use of departure delays from Boston still supports the argument that carrier caused delays at Boston trended downward, from a monthly average of 5.27% prior to ESTL to an average 5.13% after ESTL, which is a similar downward trend in delay rate exhibited by arrival delays in Graph 16 in my Rebuttal Report.[84] Therefore as I wrote in my Rebuttal Report, *"[i]f Dr. Lee were correct about the impact of [the Law] on delays, it would appear that Air Carrier caused delays at Boston would have increased after [the Law] became effective."*[85] I stand steadfastly by this statement after exploring the measure of departure delays as Dr. Lee argued.

[84] Akins Rebuttal Report, op. cit., ¶ 67.

Graph 4.



45. In his supposed correction of arrival delays *at* Boston, Dr. Lee does not use departure delays that he recommends I should have used, but curiously uses the same arrival delay data in his Exhibit 14, this time for destinations *from* Boston and not departure delays *at* Boston. Dr. Lee claims Exhibit 14 is a correction to Graph 16 in my Rebuttal Report, when it is nothing of the sort. Perhaps he chose to use the very arrival delay data he criticizes, as shown in Graph 4, because the trend in carrier caused flight departure delays *from* Boston does not fit his narrative. Using departure delays creates additional support than the original arrival delay data relied upon to measure trend of delays *at* Boston since ESTL.

46. It is also important to recall that the "carrier" related cause of flight delays used in this analysis is one of five principal delay causes collected by the US DOT. As illustrated in my Rebuttal Report, these five measures are Extreme Weather, National Aviation

System, Late Arriving Aircraft, Security, and Air Carrier Caused delays.[86] In the principal category of measures which DOT considers to be "air carrier caused" are 42 individual identified issues causing delays, including diverse causes such as aircraft cleaning, fueling, catering, gate congestion, bag loading, etc. Only one of these 42 delay measures considered "air carrier caused" is related to "late crew". Therefore, the measure of delays attributed to air carrier causes is not a clean assessment delays related to late crews alone, but rather one of a broad category of 42 delay related issues that DOT bundles under one of five principal delay measures.

XII. Dr. Lee's Example of Purported Flight Crew Related Delay Propagation Is Flawed and the Result of Several Other Downstream Delay Factors

47. A principal assertion made by Dr. Lee is that ESTL will be the cause a material increase in flight delays which will purportedly radiate throughout carrier networks, causing a downstream cascade of flight delays. In paragraph 33, Dr. Lee states, *"[t]o be sure, flight attendant sick calls can and have been the root cause of same delays that propagate and cause numerous downline delays throughout a carrier's network."* [87] For reference, he introduces an example to represent his claim. However, the example Dr. Lee uses to illustrate the risk of downstream impacts caused by a single crew delay is extremely flawed and impacted by multiple identified delay events, all of which contribute to subsequent downstream delays. He nonetheless errantly ascribes all downstream delays on the initial crew related delay. In fact, his example, rather than showing how Flight Attendant sick leave causes numerous

[86] Akins Rebuttal Report, paragraphs 66 and 67, and Graph 15.

[87] Lee Rebuttal Report, op. cit. ¶ 45.

downstream delays, actually highlights how airline operations already absorb the majority of flight delay time caused by numerous sources throughout a day. After the initial 51 minute flight delay identified as a Flight Attendant "no-show", the return flight contained an additional 36 minute delay identified as "Flight Attendant Connection" (awaiting connecting flight attendants on inbound flight), and the last of four flights was affected by an additional 15 minute flight delay identified as "passenger damage" of aircraft. These two other sources of delay contained in two of the three subsequent flight sequences in his example are of equal length (51 minutes) to the initial crew related delay. The inclusion of these two other downstream causes of delay undermine the usefulness of these flight records to support Dr. Lee's contentions, and in fact support an opposite point – delay recovery.

48. Dr. Lee's example contains four flights affected by three separately independent flight delay causes, accounting for 102 minutes of total identified delay time.[88] At their peak the combined impact of these delays caused 80 minutes of departure delays on each of two of four flight segments. By the end of the day, AA was able to ***reduce*** these combined delays by 70 minutes, with the final flight arriving at its destination RDU only 32 minutes late. Dr. Lee's example shows how AA was able to contend with a variety of delay factors and recapture much

[88] Source: Dr. Lee Report November 12, 2018, Appendix B., # 141 (American Airlines flight data), shows that the aircraft in Dr. Lee's example (# N951UW) flew six scheduled segments on July 17, 2016, with the first two segments running on time. The third segment flown by this aircraft, flight #2146 from BOS to LGA, was delayed 51 minutes due to "FA5" (flight attendant sick call or no show delay). The departure of the return flight to BOS from LGA indicates it experienced and additional delay of 36 minutes due to an even coded by AA as an "FA3" for delays related to "awaiting flight attendants on an inbound flight, including deadheads" in the AA Delay Handbook referenced above. The next flight from BOS to PHL had no additional delays but carried the combined but reduced some of the 51 minute FA5 delay and the 36 minute FA3 delays, a total of 86 minutes reduced to 80 minutes departure delay to PHL. The last flight of the day, which left PHL for RDU had an additional delay of 15 minutes unrelated to the first to upstream delay, and was coded by AA as a "DA4" and identified as a Passenger Damage relating to repair delay due to fixing or repair of aircraft seats, lavatories or other onboard facilities. Combined identified delays of 102 minutes total on three of the aircraft's final four segments of the day were reduced by 70 minutes with an arrival delay of 32 minutes on its last segment.

more time than the initial 51-minute flight attendant related delay. If anything his example highlights delay remediation as American Airlines was able to recover almost 70% of the time caused by several previous independent instances of delay.[89] Details of these flights are contained in Appendix C.

XIII. Dr. Lee Ignores the Fact That Flight Crew Reserve Systems Already Face Unpredictable Demands and are Managed Effectively to Cover Extremely Variable Operational Needs

49. Dr. Lee appears to believe that additional reserve Flight Attendants would be assigned among A4 carriers to staff only those specific flights which are impacted by ESTL-related crew delays, rather than added to a pool of existing Flight Attendants already on reserve at each carrier. He states *"For these 36 flight attendants to be able to cover all the flights delayed as a result of increased sick leave abuse, they would need to be working for the airline that had the sick call and the resulting delay and be at the airport on standby duty at the very time they were needed—which cannot be guaranteed given that sick leave on any given day is inherently unpredictable.* As I stated in my Rebuttal Report, airlines face highly variable, largely unpredictable needs for reserve staffing every day, and each airline has developed sophisticated algorithms to allocate reserves to fill staffing needs.[90] To ensure reliable

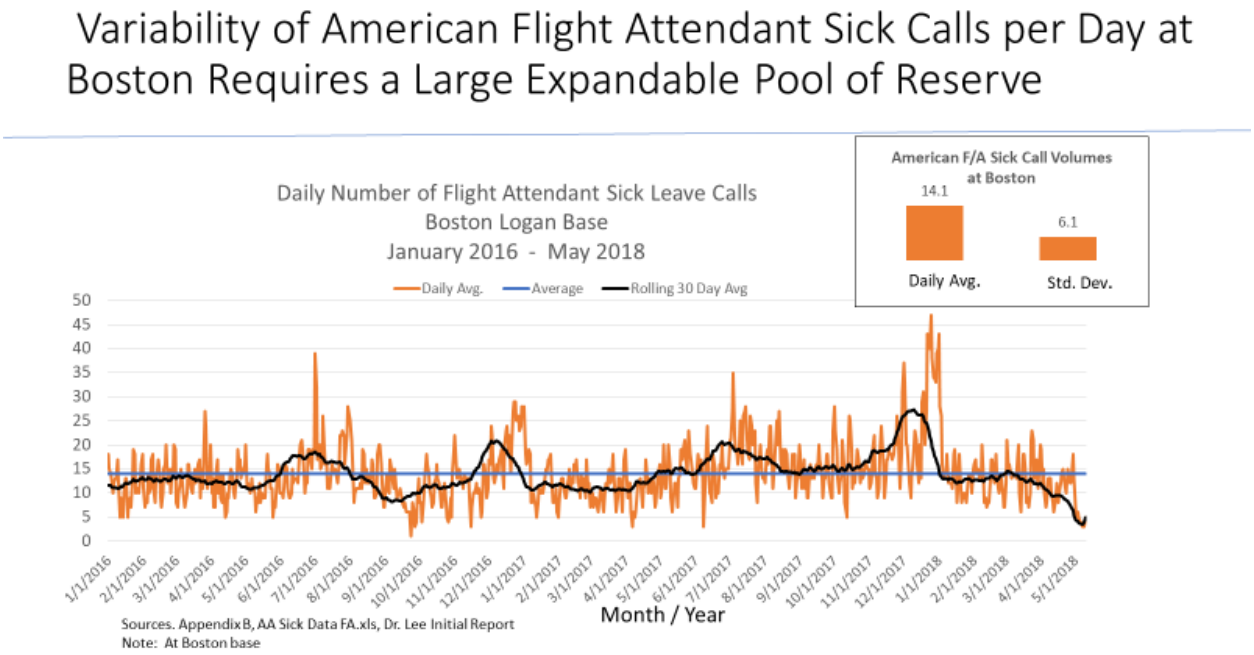
[89] AA Aircraft # N951UW in Dr. Lee's example experienced three separate delay events on July 17, 2016 totaling 102 minutes. The final flight aboard this aircraft that day landed 32 minutes after its scheduled arrival time at RDU (12:42 am instead of 12:10 am scheduled). This is 70 minutes less delay than the 102 minutes of total prior delays, which indicates that AA eliminated 68.6% of the previous delay time (70 minutes / 102 minutes).

[90] See, Akins Rebuttal Report, ¶ 40 "*Every carrier closely monitors the balance of available standby Flight Attendants and operational demands for them. The proper balance is one which ensures operational integrity without excess standby staffing. Standby staffing varies from carrier-to-carrier, base-to-base, day-to-day, informed by experience and monitored through sophisticated systems which continually assess operational needs. No carrier can exactly match its standby pool of Flight Attendants to the varying day-to-day demands of coverage. However, maintaining the integrity of the operation greatly outweighs the expense of having additional standby Flight Attendants who, unless assigned to flight duty, remain available on the ground waiting to be assigned. Ensuring carrier operational integrity through having adequate standby Flight Attendant staffing is a marginal potential change in carrier operating expense".*

operations, airlines tend to overstaff reserves to protect the integrity of the operation, as crew staffing costs pale in comparison to the costs of flight disruptions. Dr. Lee seems to assume both sides of this argument, one that the nature of unpredictable needs means that 36 Flight Attendants are not enough to cover the potential additional ESTL-related staffing shortages, and at the same time assuming, by default, that all other Flight Attendants in the existing pool of reserves are not available, but somehow assigned very efficiently to other flights which face the same unpredictability. Unpredictability of need necessitates reserve staffing overlap which can be used to cover a relatively marginal increase in day-to-day staffing needs. This is why Flight Attendants have bargained to ensure those assigned to reserve duty get paid for a monthly minimum number hours to ensure that when they are on reserve and not assigned to flying they get a guaranteed base level of pay.

50. The purported ESTL-related increase in sick delays would be covered by the same system which already provides staffing to a highly variable demand caused by Flight Attendant sick leave use. As shown in Graph 5 below, the volume of American Airlines daily Flight Attendant sick calls at Boston in 2016 through May 2018 highlight the variability and unpredictability facing the carrier each day. American Airlines and other carriers face similar variability across network, as employees unpredictably get sick and short staffing occurs. The variability in unpredictable day-to-day staffing needs requires American, and all other carriers, to have a requisite number of excess reserves able to cover peak periods where staffing needs are greatest. As a consequence, reserves may sit idle when, unpredictably, the needs for their services fall.

Graph 5.



51. Interestingly, as shown in Graph 5, the average daily Flight Attendant sick call volume for American at Boston was 14.1 during the period, but the day-to-day range was highly variable, exhibited by a standard deviation of 6.1 flights. This means that over two-thirds (68%) of the daily sick leave call variability occurred between 8 and 20.2 flights a day, from an average of 14.1. Obviously, for American to staff for this range of short staffing needs requires a degree of inefficiency which does not allow for the precision Dr. Lee suggests is needed. Of note, this range in normal expected daily variability (+/-6.1 flights) at American is four-times greater than the number of flights purportedly impacted by a 2% increase in delays due to staffing delays of 1.5 a day. In fact, the expected range of variability in daily Flight Attendant sick calls for American (+/-6.1) is equal to the 2% of daily flights volumes (6) for all A4A carriers combined

using the results of Dr. Lee's analysis. Individual carriers are already likely able to absorb most of the marginal impact in staffing required by ESTL primarily from their current reserve pools.

A. Flight Attendant Related Delays Are Mostly Less Than 15 Minutes

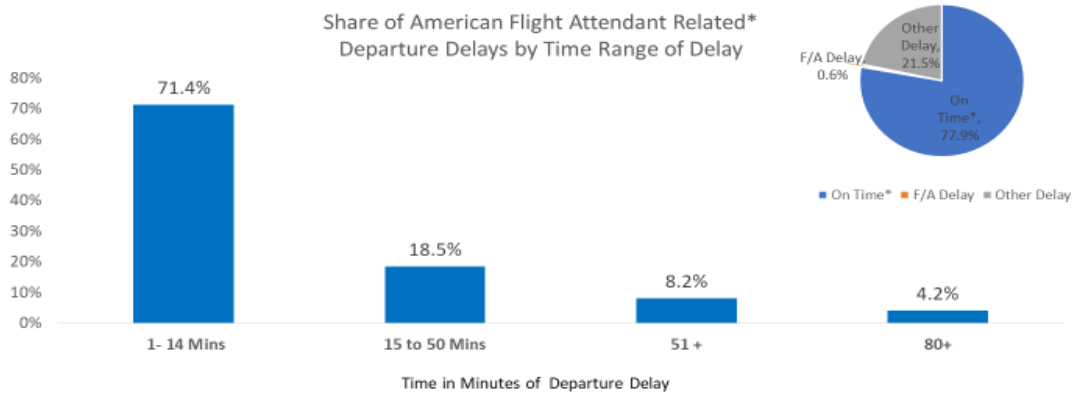
52. A simple analysis of AA flight records highlights the rarity of the length of delay found in Dr. Lee's example. Using data from the same period, July 2016, used in Dr. Lee's example, only 0.6% of AA flights had Flight Attendant related delays of 15 minutes or more.[91] Of AA flights that were affected by any type of Flight Attendant related delay (not just sick call or no shows), those lasting 51 minutes or more (as in Dr. Lee's example) represent just 0.18% of all AA flights, and only 8.2% of all delayed flights caused by any identified Flight Attendant issue.[92] As shown in Graph 6 below, over 71%, of all AA Flight Attendant related delays are under 15 minutes. As such, the vast majority of Flight Attendant caused flight delays would not even register as delays under US DOT delay guidelines (D>15). [93]

[91] Lee Initial Report, op, cit., Appendix B, Exhibit #141,.
[92] *Ibid*
[93] According to US DOT Air Travel Consumer Report, "*A flight is counted as "on-time" if it operated less than 15 minutes after the scheduled time shown in the carriers' Computerized Reservations Systems (CRS)".*

Graph 6.

Rebuttal of Dr. Lee Paragraph 46

Share of American Flights with F/A Related Departure Delays by Time Range of Flight Delay



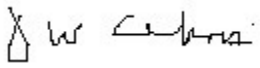
Source: Dr. Lee Initial Report, Appendix B #141 (American Airlines Flight Data for July 2016) and AA Delay code handbook version 2.1 September 15, 2015.
Note: AA departure delay share of time of total delay time in minutes across their system. Percentages do not add as 51+ includes 80+.
AA F/A Delay includes 9 sources of F/A related delay.

53. It would seem, rather than use an obscure example of an outlier event, fraught with complications from additional sources of delay, on flight segments flown over four years ago that fail to prove his point, Dr. Lee could have evaluated the larger AA flight record data set available to him to determine how impactful Flight Attendant related delays were on the on-time operation of AA flights. As shown above, the result of such an analysis do not support his claims. I continue to defend the proposition that the results of Dr. Lee's statistical analysis of a negligible 1 to 2% increase in flight delays purportedly due to use of Flight Attendant sick leave time may be statistically *significant*, but is not *practically* significant. As such the application of ESTL to A4A airlines operating at Boston Logan has not and will not cause airlines to raise fares, reduce services, abandon routes, nor cause the cataclysmic delays for passengers across airline networks. His example does not support this nor does the record traffic growth, fare reductions, route expansion and investments at BOS pre-pandemic.

XIV. Conclusion

54. Dr. Lee's continued search for significant practical impacts of paid sick leave laws to show harm to airlines and passengers in Massachusetts remain unfulfilled, as the results, especially at Boston, run counter to his suppositions and claims. The pandemic highlights the importance of guaranteed paid sick leave access, especially to airline workers, who are exposed to passengers, baggage, and other vectors of the virus. Faced with overwhelming factual evidence of historic growth, expanded route networks and services at lower fares in Boston since ESTL became law, Dr. Lee claims it would have been better without ESTL. This is no defense to support his continual exaggerations of the impact of employee paid sick leave laws on airlines or their passengers. As I point out, ESTL is a health safety measure which could actually help entice passengers back aboard aircraft with the knowledge that airline employees have access to paid sick leave and are not at work to avoid discipline or work while sick. The benefits to the public, airline employees and their passengers far outweigh whatever propped-up claims and exaggerated impacts Dr. Lee has claimed. The federal court decision in the Washington State case should be a harbinger of reason in rejecting Dr. Lee's arguments in Massachusetts as well.

Executed this day under pains and penalties of perjury this 2nd of November 2020, at Stowe, Vermont.



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Appendix B Detailed Analysis of Flight Attendant Staffing Cost Example

The following is a a more detailed analysis of Dr. Lee's methodology used to inflate estimated Flight Attendant staffing costs to offset to purported increase in sick leave use.

Dr. Lee claims*, "[i]n other words, Mr. Akins's analysis not only effectively assumes that carriers can predict with precision when and where cabin crew delays will occur (they cannot), it also impracticably suggests that carriers share flight attendants (they do not). Reality would demand that each carrier hire their own staff".* In response to the latter argument of Dr. Lee's statement, as I have stated above, for argument sake I assumed that ESTL would impact each A4A carrier, even those without bases in Boston. Since two of the five A4A carriers at Boston do not have crew bases in Boston, my analysis was overstated costs to begin with.[94] Regardless of this assumption which artificially broadens the potential cost base, my analysis indicates that fares would only potentially increase by *6 cent to 25 cent per passenger* , an increase of between 0.02% to 0.07% per average ticket of $334 in Boston.[95] This is based on a reasonable estimate of the likely impact of Dr. Lee's statistical results at Boston, assuming pre-pandemic levels of traffic.

In response to Dr Lee's claim, above of the need for carrier's ability to "*predict with precision*", my analysis does not assume it, nor does the current level of reserves staffing at any carrier require it ,even for those with crew bases at Boston. Dr. Lee assumes a misconception, as any additional Flight Attendant would be additive to the pool of approximately 20% of total

[94] See Appendix D, Southwest and Alaska do not have crew bases at Boston.
[95] Akins Initial Report, op. cit. ¶ 30, Graph 9.

Flight Attendants that are already assigned reserve duty to cover a wide range of unpredictable and highly variable flight staffing needs at each day. I generously assume that the Flight Attendants are assigned to cover the variable range of precisely 3 to 6 daily flight delays for all A4A carriers combined. Although I assume any new required additional staffing is based on each reserve Flight Attendant would cover 5 three-day assignments, in reality Flight Attendants on reserve duty are not fully utilized through flight assignments, and the supply of Flight Attendants often exceeds the need, leaving additional coverage from those not assigned to flights.

Dr. Lee asserts *"[a]ccordingly, by modifying Mr. Akins's analysis to assume that each A4A member airline in Boston—in an attempt to partially mitigate against the additional unpredictable delays—would need to hire additional flight attendants for airport standby coverage for enough reserve periods per day to have coverage between its first and last flight of the day (e.g., a carrier operating flights between 6:00 a.m. and 9:00 p.m. would need to hire flight attendants for five four-hour reserve periods in a 24-hour window), each carrier would need at least 24 to 30 additional flight attendants—or at least 132 total additional flight attendants for the five A4A carriers in Boston"*. This is an extreme exaggeration of staffing needs designed to inflate costs and the impact on fares Dr. Lee wishes to imply would cause reductions in airlines routes and services. Even if we assume Dr. Lee's cost estimate is correct, and the total staffing cost for all 5 A4A carriers combined would be $11.7, the cost would be 91 cents per passenger, or a 0.27% increase in average fares. Again, even if we assume Dr Lee's analysis is correct, which it is not, he cannot build practical significance on the basis his marginal statistical results.

No Boston Base - No ESTL compliance – No Reserves

Dr. Lee's claim that the A4A carriers operating at Boston would need 24 to 30 additional Flight Attendants for *each* of the carriers is a staggeringly exaggeration developed through raw assumed mathematics without regard the basis of the results. Consider for example the operations of Alaska Airlines, one of the five A4A carriers operating at Boston. As shown in Graph 7 below, Alaska Airlines does not operate a Flight Attendant base at Boston, therefore none of its crew would be impacted by the ESTL compliance, as Dr. Lee agrees elsewhere in his Rebuttal Report.[96] Perhaps this is a result of more seasoned Alaska Airlines managers understanding the difficulties in establishing a distant crew base, thousands of miles away from core operations on the west coast that Virgin America management, years earlier, did not understand.

Graph 7.

Alaska Airlines Cabin Crew Bases

Source: Alaska Air Group. https://alaskaair.jobs/career-opportunities/flight-attendants/

[96] Lee Rebuttal Report, op. cit, ¶ 41, *"By way of explanation, I understand that if the Law were to apply to airlines it would apply to Boston-based flight attendants*".

If Alaska did have a base at Boston the carrier's exposure to ESTL related delays would purportedly be based on applying Dr. Lee's statistical finding of a 1% to 2% delay increase to Alaska's daily average of less than 9 flight departures at Boston. This which would cause an average increase in flight delays of between **0.6 and 1.2 flights delays *per week*.**[97] Dr. Lee's analysis would require that 24 to 30 additional Alaska Flight Attendants be hired for reserve duty to cover essentially one or fewer flight delays per week, in a city where they have no crew base. This would create a reserve staffing ratio of 4 to 7.3 Flight Attendants per delayed flight, which would match or greatly exceed the actual staffing aboard Alaska aircraft departing Boston requiring on average 3 to 4 Flight Attendants per flight.[98] Clearly Dr. Lee has exaggerated his claims here, and his estimated minimum of 132 new hire Flight Attendant is wildly above needs of these 5 A4A carriers combined.

Dr. Lee's Exhibit 13 graphically depicts his expansion of my original cost estimate to reach, in his view, the potential minimum costs associated with reserve staffing needed to cover a 1% to 2% increase in the already highly variable flight delay volumes at Boston. In the waterfall chart shown in Exhibit 13, Dr. Lee is not content to just use an expanded reserve pool of 132 reserves for A4A to develop a higher $11.7 million cost estimate required to cover the impacts of ESTL on the 5 A4A carriers alone, he for some reason, assumes its relevant to apply purported ESTL impacts on ***all*** carriers serving Boston, operating as few as a single daily flight. Dr. Lee tries to expand the practical impact of his statistical findings by more than doubling the carrier set size to reach a cost estimate that is more than doubles the cost of compliance to

[97] US DOT Data
[98] *Ibid.*

$27.2 million, *regardless of whether or not those carriers have Flight Attendant bases at Boston*. He reaches this figure by misapplying the cost of Flight Attendants at the 5 A4A carriers, which are generally much higher than those at the regional and ultra-low-cost carriers he adds.[99]

The artificially inflated and miscalculated $27.2 million cost estimate Dr. Lee develops from his expanded set of 13 carriers would causes an implied increase in costs which could raise the average fare by $1.59, if such costs were passed onto customers. Interestingly, Dr. Lee does not include the implied 91 cent per passenger impact of his inflated costs of $11.7 million for A4A carriers alone, but only the much higher, and irrelevant cost per passenger of $1.59 per passenger, based on the eight additional non-A4A carriers he erroneously includes in the mix. Only one of these eight additional carriers, Delta, has cabin crew base in Boston, leaving the other unaffected by the Law.[100] These other 7 carriers do not have exposure to ESTL compliance and should not be included in his example. Nonetheless, this inflated result of $1.59 per passenger represents a marginal 0.5% increase on the average fare of $334 (2018) at Boston. Dr. Lee applies an exaggerated headcount, inflated cost base, and the inclusion of 8 additional non-A4A carriers to artificially pump-up the costs as high as possible. Yet, this

[99] Lee Rebuttal Report, op. cit. ¶ 63, footnote 166, In addition to his estimated minimum of 132 A4A flight attendants Dr. Lee adds headcount from 8 non-A4A carriers, including, 30 flight attendants each for Delta and Spirit; 24 flight attendants each for Republic, Endeavor, Envoy, and SkyWest; 12 flight attendants for Sun Country; 6 flight attendants for Piedmont. New Hire hourly pay rates at all but Delta are approximately 30% below A4A carriers.

[100] Lee Rebuttal Report, op. cit., ¶ 41 and footnote 107 " See "Earned Sick Time in Massachusetts Frequently Asked Questions," Massachusetts Attorney General's Office, September 21, 2018, http://www.mass.gov/files/documents/2018/09/21/ est_faq_1.pdf, (To be eligible [for earned sick time], an employee's primary place of work must be in Massachusetts. . If the employee spends work hours traveling outside Massachusetts (making deliveries, engaging in sales, etc.) but returns regularly to a Massachusetts base of operations before resuming a new travel schedule, Massachusetts is the primary place of work. . . . It is not necessary for an employee to spend 50% of the employee's working time in Massachusetts for it to be the employee's primary place of work.").

exaggerated increase is clearly not large enough to create the outsize practical impacts he predicts.

Appendix C Details of Dr. Lee's Errant Example of Downstream Delay Propagation

I have outlined below the four delayed flight sequences from the American Airlines flight records used in Dr. Lee's example. As Dr. Lee describes in paragraph 45, after completing two previous on-time flight segments earlier on July 17, 2016, American Airlines aircraft #N951UW was scheduled to fly its third flight segment of the day from BOS to LGA, but its departure was delayed by 51 minutes. This delay was due to something listed in the flight records as an "FA5" delay code, identified in the AA Delay Code Handbook as "*Flight Attendant Sick or No Show*", and described as "[*r]eplacing or accommodating a sick or no show flight attendant*". [101] Since this code contains two similar but different causes, it is uncertain as to whether what is shown in Dr. Lee's example was actually a sick call or some other no show event, which I illustrate could bear significance on the length of the delay, which is well outside the norm for flight attendant related delays, the majority of which do not exceed 15 minutes.[102]

Dr. Lee exhumed this example from July 2016 by culling a series of American Airlines records (containing over 200,000 rows of individual flight details) from the month to find a supposed crew related delay of sufficient delay time. [103] Below is a summary of segments flown in Dr. Lee's example.

[101] *Ibid*

[102] Analysis of AA flight records from July 2016 indicate that departure delays of 51 minutes or more due to any type of flight attendant related delay (i.e. any of the nine factors identified in the AA Delay Handook) affected only 0.18% of all American Airline flights. Analysis of the same data indicate 71.4% of all flight attendant related delays are less than 15 minutes.

[103] Op. cit. Lee Initial Report, Appendix B.

a. The delayed flight #2146 from BOS to LGA was delayed 51 minutes on departure due to an FA5 delay code and arrived 54 late at LGA, having lost three more minutes in the flight or on the ground.

b. On the return flight, #2156 from LGA to BOS, there was an additional 36 minutes delay due to an "FA2" delay code that is listed in the AA Delay Handbook as "*Flight Attendant Connection*" described as "*awaiting flight attendants from inbound aircraft flights*".[104] The flight from LGA to BOS now had 87 minutes of previously identified delay code time associated with two separate causes of delay (51 minutes at BOS and 36 minutes at LGA). Flight # 2156 departed 80 minutes late from LGA for the return flight to Boston, making up 7 minutes of accumulated delay from the two separately identified delay events.

c. The next flight, #1679 from BOS to PHL, also departed 80 minutes late and arrived in PHL 64 minutes late, making up 16 minutes of the departure delay.

d. The final flight, #2024, from PHL to RDU, had an additional 15 minute delay in PHL due to a delay identified as a "DA4", which is related to "*Passenger Damage*", described in the AA Delay Handbook as repairs to broken seats, armrests, seatbelts lavatories fixtures, etc., all clearly unrelated to the previous two delay causes.[105]

e. Despite all three delay events causing over a combined 102 minutes of identified delays over four consecutive short-haul flights, the last flight of the day to RDU, # 2024 departed 40 minutes past schedule and arrived 32 minutes late in RDU.

[104] *Ibid*
[105] *Ibid*

Obviously, this series of flights are not a good example of a single initial delay propagating downstream that Dr. Lee claims. It is rather an example of the combined impact of several comingled delays over multiple flight segments and how AA mitigated these delays. Dr. Lee would have us believe that the impact of the initial flight attendant sick call or no show delay was the single cause of a large and continuing level of delay throughout the day, when in fact this is not the case. Dr. Lee does not mention the fact in his example AA's flight records that two other separately identified and independent delays occurred on subsequent flight segments adding to downstream delay. He also did not indicate that combined these two other identified delays contributed as much delay time, 51 minutes, to the downstream flight sequences as the initial 51-minute delay. Additionally, the initial event may not in fact be the result of a sick call as the FA5 delay code includes Flight Attendant "no show". A Flight Attendant "no show" event, as opposed to a "sick call", would appear to cause a more severe and unavoidable impact than a notified sick call, due to the fact that there would be no advance indication of a need for reserve coverage.

Also, critical to note in this sequence is that the downstream arrival delay on the last 2 flights that Dr. Lee ascribes to the initial delay out of Boston would have occurred due to the other identified delays regardless of the timeliness of the initial flight. Despite the initial delay on AA flight #2146 from BOS to LGA, the subsequent return flight #2156 to BOS from LGA had to wait additional time at LGA until a flight attendant arrived on another incoming flight.[106] This 36-minute additional delay was on top of the 54 minute arrival on the previous flight #

[106] Identified as an FA3 code in the AA Delay Handbook, Vol 2.1, September 2015.

2146 from BOS to LGA. It appears that regardless of the initial delay on the BOS to LGA that the return flight from LGA to BOS would have been delayed they same amount of time due to the wait for the flight with the incoming flight attendant to arrive. This new delay would have appeared on the subsequent LGA to BOS flight regardless of the timeliness of the incoming BOS-LGA flight due to the wait for the incoming flight attendant.

Appendix D Flight Attendant Crew Bases

Alaska:

Flight Attendant Crew Bases: Anchorage, Los Angeles, Portland, San Diego, San Francisco, and Seattle

American:

Flight attendant bases, located in Boston, MA, Chicago, IL, Dallas/Fort Worth, TX, Los Angeles, CA, Miami, FL, New York City, NY, San Francisco, CA, and Washington, DC:

JetBlue:

JetBlue University in Orlando and then are assigned (and must either relocate or commute) to one of five bases: BOS (Boston), FLL (Fort Lauderdale), JFK (New York), LGB (Long Beach) or MCO (Orlando).

Southwest:

Current Flight Attendant bases are in Atlanta, Baltimore, Chicago, Dallas, Denver, Houston, Las Vegas, Orlando, Oakland and Phoenix. Bases are assigned during Initial training, dependent upon the operational needs of the Company and seniority within the training class.

United:

United domiciles - Boston, Chicago, Cleveland, Denver, Honolulu, Houston, Las Vegas, Los Angeles, Newark, San Francisco, Washington DC, Frankfurt, Guam, Hong Kong, London, and Narita.

Source: Carrier Web Sites